

A GUIDE TO CURRICULUM STUDY: AGRICULTURE

C375.63
J27g

THE LIBRARY OF THE
UNIVERSITY OF
NORTH CAROLINA



THE COLLECTION OF
NORTH CAROLINIANA

C375.63
J27g

**This book must not
be taken from the
Library building.**

UNIVERSITY OF N.C. AT CHAPEL HILL



00048089940

1975-76
5477

A GUIDE TO CURRICULUM STUDY

Agriculture

by
Gerald B. James
G. Herman Porter

**Department of Curriculum Study and Research
State Board of Education
Raleigh, North Carolina**

The following guides to curriculum study are in preparation or are completed. They may be secured free by writing to Department of Curriculum Study and Research, State Board of Education, Raleigh, North Carolina.

Course Outline

English (Language Arts)

Mathematics, Elementary

Mathematics, High School

Science

Social Studies

Foreign Language

Physical Education and Athletics

Health

Business Education

Home Economics

Agriculture

Industrial Arts

The Contribution Guidance Can Make

The Problem of Readiness for Learning

The Library and Library Service

TABLE OF CONTENTS

FOREWORD	iv
SUMMARY OF THE REPORT AND RECOMMENDATIONS.	v
CURRICULUM STUDY QUESTIONS ON AGRICULTURAL EDUCATION	ix
I. AN OVERVIEW OF AGRICULTURAL EDUCATION IN THE PUBLIC SCHOOLS	1
Introduction	1
Why Was Instruction in Agriculture Provided in the Public School System?	1
The Types of Agricultural Courses That Were Tried	2
The Development of Federally Aided Vocational Education in Agriculture.	2
What Effects Did Federal Aid Have Upon Agricultural Education in the Public Schools?	3
II. THE EVOLUTION OF CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION IN AGRICULTURE.	4
What Approaches to Curriculum Development Have Been Tried?	4
A. The Subject and Year Approach	4
B. The "Cross-Sectional" Plan	4
C. The Seasonal, "Enterprise and Job Analysis" Plan	4
Increased Emphasis on Using Sound Educational Principles in Curriculum Development.	6
A. Relationship Between Learning Theory and Curric- ulum Development in Vocational Agriculture	6
1. Readiness for learning	6
2. Motivation and learning	7
3. Organization in learning and the curriculum.	7
4. Transfer of training and the curriculum	8
5. Summary.	8

p453e7

	Page
B. What Are the Patterns of Curriculum Development?	9
1. Common information pattern.	9
2. Common units pattern.	9
3. Common process pattern	9
C. The Use of Farm Problems of Enrollees as a Basis for Curriculum Development in Vocational Agriculture	10
1. Supervised farming program concept.	11
a. Productive projects	11
b. Improvement projects.	12
c. Supplementary farm practices.	12
2. Soundness of the supervised farming program concept.	12
a. Educationally	12
b. Economically.	13
c. Psychologically	13
d. Socially.	14
How Can FFA and NFA Organizations Contribute to the Curriculum in Vocational Agriculture?	14
III. PROBLEMS RELATED TO CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION IN AGRICULTURE	17
Introduction	17
What Are the Policies Affecting Curriculum Development in Vocational Education in Agriculture?	17
A. Federal Policies	17
B. State Policies	18
C. Local Policies	18
What Are the Objectives of Vocational Education in Agriculture?	19
What Implications Do Conditions in Agriculture Have for Educational Needs?	20
A. What Are the Conditions and Trends Surrounding Agriculture?	20
B. What Education Needs Are Implied?	21

	Page
Who Should Receive Agricultural Education in the Public Schools?	22
A. Poor Balance Between Vocational Education in Agriculture for Farmers and for Prospective Farmers	22
B. Need for Some Type of Agricultural Education in the Public Schools Other Than Vocational Education in Agriculture	24
Who Should Develop the Curriculum in Vocational Education in Agriculture?	27
Upon What Bases Should the Curriculum Be Developed?	27
IV. RECOMMENDATIONS.	28
BIBLIOGRAPHY:	
References Cited in the Report	39
Selected References Recommended for Further Study of Agricultural Education	44
APPENDICES:	
Appendix A - Recent North Carolina Studies in Agricultural Education	46
Appendix B - Recommendations for Improving Vocational Agriculture in District V, North Carolina	49
Appendix C - Vocational Education Needs for Southern Progress.	59
Appendix D - Procedures for Planning an Instructional Program in Vocational Agriculture	64
Appendix E - The Relation of Socio-Economic Trends in Agriculture to the Educational Objectives of Vocational Agriculture	69

FOREWORD

This study guide for vocational agriculture has been developed from experiences gained in studies initiated under the direction of Dr. Gerald B. James when he was assistant director of Curriculum Study and continued under the direction of Mr. G. Herman Porter.

Vocational education in general and vocational agriculture in particular are moving rapidly into a period of radical change to meet changing needs. This report should be of value in helping direct these changes along constructive lines.

Appreciation is expressed to the late Dr. George P. Deyoe and to Mr. E. C. Pasour for permission to include material used in the appendices. Appreciation is also expressed to the following who read the manuscript and made recommendations for improvement:

Dr. C. C. Scarborough, head, Department of Agricultural Education,
North Carolina State College, Raleigh, N. C.

Mr. H. G. Beard, administrator, Agricultural Education, State
Department of Public Instruction, Raleigh, N. C.

Mr. A. G. Bullard, state supervisor, Vocational Agriculture, State
Department of Public Instruction, Raleigh, N. C.

June 20, 1962

I. E. Ready, director
Department of Curriculum
Study and Research

SUMMARY OF THE REPORT AND RECOMMENDATIONS

Agricultural education in the public schools of the Nation has grown to be an important part of the public school curriculum, especially in the rural schools. Agricultural education was taught in the public schools 75 years ago. Its greatest growth occurred after the passage of the Smith-Hughes Act of Congress in 1917. This Act and subsequent Federal Acts provide matching funds for several types of vocational education, vocational education in agriculture being one type. (See pages 1-3)

Current trends in education and society suggest the addition of units or courses of general education in agriculture for students who do not take vocational agriculture. The trends also suggest changes and some new approaches in agricultural education.

The approaches to curriculum development in vocational education in agriculture have changed over the years. The early curricula in agriculture were somewhat "bookish" and "nonvocational." Current philosophies and principles of curriculum development in vocational agriculture have been profoundly influenced by learning and educational theory and democratic principles. Four major areas of learning theory, which are generally accepted and which have direct implications for curriculum development are as follows: (1) readiness for learning, (2) motivation and learning, (3) organization in learning, and (4) transfer of training. (See pages 4-11)

The "Supervised Farming Program" concept is the "heart" of truly vocational education in agriculture. Farming programs of those enrolled appear to be an effective base from which to develop a curriculum. It enables the curriculum to be based upon the vocational education needs in agriculture of those enrolled and gives enrollees a chance to help structure the curriculum. (See pages 11-14)

The FFA and NFA organizations have a good potential in providing student motivation and practical experiences which are needed for good vocational teaching-learning in a high school curriculum in agricultural education. Using class time for extra-curricular activities and over-emphasis on contests are pitfalls to be guarded against. (See pages 14-16)

Several problems related to curriculum development in vocational education in agriculture are discussed in Section III in the Guide. The problem areas discussed deal with policies, objectives, conditions in agriculture, who should be enrolled, who should develop the curriculum, and upon what basis should the curriculum be developed. Many of the following recommendations pertain to these problem areas. (See pages 17-27)

The following briefly stated conclusions and recommendations for agricultural education are based upon the studies referred to in the Guide and are further explained in the section on recommendations. (See pages 28-38)

1. Support, supervision, and administration by local school people is essential for quality programs of vocational education.
2. To provide quality education and to administer appropriate patterns of educational experiences, cooperation and good communication must exist among the various types of education and public school services.
3. All feasible approaches to meeting the vocational education needs of youth and adults should be explored.
4. As much local autonomy should be fostered as local people will responsibly accept in meeting the educational needs of all the people. Federal and State policies and regulations should be indicative of this principle.
5. It is recommended that in addition to the present major objectives of vocational agriculture increased emphasis be given to (a) consideration of the over-all vocational needs of the enrollees, (b) education for nonfarming agricultural occupations, (c) guidance and occupational exploration for youth and adults, (d) education for part-time farmers, and (e) the economic and management phases of agriculture.
6. Specific objectives and policies for each local program should be developed.
7. Local people (lay and professional) should define the role that vocational agriculture should fill in their schools and organize groups to study major problems and means of carrying out the defined role.
8. It is recommended that suggested units of subject matter be provided by the state to those teachers who cannot presently overcome the several limitations to developing a curriculum locally.
9. The students should be the center of learning rather than agriculture, using agricultural subject matter and practical experiences as a means of learning.
10. Increased emphasis should be given to identifying and meeting the people's educational needs relative to adjustments needed in a "changing agriculture."
11. A prominent part of the activities of the FFA and NFA organizations should be directed toward motivating students in participating in practical experiences such as their farming programs.
12. It is recommended that the FFA and NFA contests not be overemphasized.

13. The curriculum in vocational agriculture should be challenging to the abilities of all students.
14. It is recommended that good counseling and guidance procedures be used in selecting and grouping students.
15. It is recommended that increased emphasis be given to adult education.
16. It is recommended that every effort be made to minimize the limitation that school schedules pose on the students' educational opportunities in electing subjects such as vocational agriculture.
17. Specific teacher time during the school day should be scheduled for adult education as well as for youth education.
18. Individual instruction on the student's farm is essential to an effective program of vocational agriculture and adequate teacher time should be scheduled for it.
19. It is recommended that strong in-service education and other professional improvement programs be provided for teachers of agriculture.
20. Teachers of agriculture should perform the role of an educator and should not have their time and energies dissipated in service activities.
21. It is recommended that teachers of agriculture assist wherever possible in helping the school provide a good vocational guidance program.
22. It is recommended that programs of vocational agriculture be financed so as not to require student and teacher time in fund-raising projects.
23. It is recommended that appropriate and adequate facilities and equipment which are essential to an effective program of vocational agriculture be provided.
24. It is recommended that the major responsibility for administering and supervising programs of vocational agriculture be accepted locally.
25. It is recommended that sufficient state-level consultant help be made available so that they may be used freely in helping local people plan and evaluate programs of vocational agriculture.
26. It is recommended that new approaches and patterns for providing agricultural education and other vocational and practical arts education in the public schools be explored.
 - a. Provide agricultural business and technology education, especially to post-high school students.

- b. Provide general vocational courses at the junior high school and/or early high school levels.
- c. Provide vocational education in agri-business at the high school level.
- d. Appropriate vocational education for the upper grade students should be provided.

Appendices

Several appendices are included in the study guide to further explain points raised in the main body of the report. Certain information was included in the appendices not because it is of secondary importance but rather to help make the report clear, concise, and brief.

Brief descriptions of recent North Carolina studies which were especially helpful in arriving at recommendations are included in Appendix A. (See pages 46-48)

Appendix B includes the recommendations made by the District V Vocational Agriculture Advisory Committee for improving vocational agriculture in the District. (See pages 49-58)

Appendix C deals with the role of vocational education in Southern progress and suggests several needed changes. (See pages 59-63)

Presented in Appendix D is an outline of procedures to use in planning an instructional program in vocational agriculture. (See pages 64-68)

Included in Appendix E are the conclusions, needed changes, and implications stated in a study which dealt with trends in agriculture and the educational objectives of vocational agriculture. (See pages 69-72)

CURRICULUM STUDY QUESTIONS
ON
AGRICULTURAL EDUCATION

(The following questions are intended as stimulants to further inquiry,
and should give rise to many more questions.)

I. WHAT ARE THE EDUCATIONAL NEEDS OF THE PEOPLE (YOUTH AND ADULTS) IN THE SCHOOL COMMUNITY?

A. What are total education needs?

1. What is an "educational need?"
2. Does one always recognize his educational needs?
3. How are the educational needs of people identified?
4. Are some educational needs more important than others?
5. Is it necessary to identify educational needs before assessing the need for education?
6. What is the responsibility of the public schools in providing appropriate educational opportunities beyond the high school level for those who leave or graduate from school, but do not enter college?
7. Are some students discriminated against in your school system because appropriate education is not provided in the curriculum pattern or courses offered?

B. What are the agricultural education needs?

1. How can the agricultural education needs of the people in your community be determined?
2. What are the needs?
3. Which of the following forms of agricultural education should be provided in the public schools to meet the agricultural education needs of the people in your community? For adults? For youth?

- a. Vocational agriculture - in most instances this form of education is supported in part by National funds. Both youth and adults are enrolled in it and are expected to engage in farming while they are enrolled.
- b. Agricultural technology - this form of education is presently being offered in a few Industrial Education Centers. It is designed mainly for those who are out-of-high school, needing either pre-employment or upgrading training in agricultural occupations found in business, industry or service.
- c. General agriculture - usually this type of education is offered as a course or in other courses for persons who have not made occupational choices and who need general education in agriculture.
- d. Nonvocational education in agriculture - usually provided as a part of general education for persons who are employed, or who expect to be employed, in occupations outside the field of agriculture.

II. WHAT IS THE PLACE OF VOCATIONAL EDUCATION IN AGRICULTURE IN THE SCHOOLS?

A. What is vocational education in agriculture?

1. What are the meanings of the words "vocational," "education," and "agriculture?"
2. What is the difference between "general education" and "vocational education" in agriculture?
3. What is the relationship of agricultural shopwork to industrial arts?
4. Does the average person have misconceptions about vocational agriculture?

B. What are the unique contributions of vocational agriculture to the students enrolled?

1. What are the purposes and objectives of vocational agriculture? What should they be?
2. What methods and content are used to meet these objectives? What should be used?
3. To what extent do the pupils become proficient in farming?
4. What value does "training for proficiency in farming" have for students who enter nonfarming agricultural occupations? Those who study agriculture beyond high school education? Those who enter nonagricultural occupations? Those who study nonagricultural subjects beyond high school?

5. What implications do trends in agriculture have for improving curriculum quality?

III. WHAT IS THE STATUS OF VOCATIONAL AGRICULTURE IN THE NORTH CAROLINA SCHOOLS?

A. Are the "right" students studying vocational agriculture?

1. Are some students directed into vocational agriculture because it is the only vocational course offered for boys? How many of the boys enroll in it for the shopwork which is included?
2. Are the vocational education needs of youth who are not interested in agriculture met through vocational agriculture? Is this at the expense of not meeting vocational education needs of adults who are farming?
3. Is vocational agriculture considered a noncollege preparatory vocational subject and treated as such in scheduling? Should it be so considered?
4. What is used most in determining the youth and adults who are to be enrolled? Agriculture education needs, special interests, lack of additional vocational courses, schedules, laboratory facilities, etc.

B. Are good conditions for teaching and learning vocational agriculture prevalent?

1. Is enough and the right kind of equipment available for laboratory use?
2. Are textbooks and other teaching-learning aids adequate?
3. Do the students have credible supervised farming programs which are adequately supervised?

C. What do people in the community think of vocational agriculture?

1. Do they think it is for any boy in high school?
2. Do they know it is for adults as well as for boys?
3. Do the people expect the teacher to perform services for them which are not of educational value? Should they expect it?
4. Do the people know the difference between the FFA and vocational agriculture?
5. What is the status of vocational agriculture among the other faculty members?
6. Where do students rate vocational agriculture in their scale of values?

D. How good is the curriculum in vocational agriculture?

1. How much of the curriculum is "vocational" and how much "general" education?
2. Is what is studied in the classroom and laboratory related to the farming programs of those enrolled?
3. Is the program (curriculum and type of enrollment) largely determined by the special interests and abilities of the local teacher(s)?
4. What influence do the subject-matter oriented FFA contests have on what is included in the curriculum? Is too much emphasis given to contests?
5. Is the curriculum sufficiently challenging to all students? Is it considered an "easy" or "soft" subject?
6. Is adequate time devoted to planning and structuring the curriculum?
7. Is the course of study organized into meaningful units of instruction, e.g., series of classes for adults on an appropriate unit?

E. Is there consensus among the school administrator(s), the teacher, the people, and agricultural education consultants on the function of the department of vocational agriculture? Is the consensus in the form of written policies?

F. Are advisory groups used effectively?

G. In multiple teacher departments, do the teachers specialize in certain areas? according to subject matter areas? according to youth programs or adult programs?

H. What effect does the size of school and number of course offerings have upon the enrollment in and objectives for vocational agriculture?

IV. WHAT IMPROVEMENTS ARE NEEDED?

A. What types of agricultural education should be provided in the school and at what levels should it be provided?

B. What should be the role of teachers of agriculture in assisting other teachers who need to relate some of their teachings to agriculture?

C. Should the curriculum for the first year or two in vocational agriculture include exploratory experiences and vocational guidance in areas other than agriculture?

- D. Has the course been revised to meet the needs of people in a modern agriculture?
- E. What special help do teachers need in developing the curriculums in vocational agriculture?
- F. Are adequately trained teachers available?
- G. Do adult education responsibilities help or hurt the high school instructional program?
- H. Do state and federal regulations promote or hinder the program?
- I. How helpful is state supervision?

V. HOW CAN WE GET WHAT WE NEED?

- A. What changes in the financial support method are needed?
- B. How can the needed in-service training of teachers be provided?
- C. How can we prepare teachers who are technically and philosophically competent?
- D. What curriculum adjustments are needed for a modern and changing agriculture?
- E. What are the local policies that need to be stated to give direction to the program?
- F. How can school administrators be assisted in developing a philosophy of vocational education?

AN OVERVIEW OF AGRICULTURAL EDUCATION IN THE PUBLIC SCHOOLS

Introduction

The teaching of agriculture in the public schools has been practiced for approximately three fourths of a century. Numerous approaches have been made in developing programs of agricultural education during this period. Curricula have been changed with changing educational philosophy and changing agriculture. (55; 62)

The first section of this report deals with a broad overview of the development of agricultural education since its beginning in the public schools.

Why Was Instruction in Agriculture Provided in the Public School System?

During the period around 1850 there was a rapid advancement in the development of industry in the United States. The development was so rapid that society looks back upon it and gives it a name: The Industrial Revolution. Industries sprang up along the fall line of rivers and were somewhat concentrated in relatively small areas. Industrial workers lived close around the industries. New ideas, research findings, and improved practices and methods could easily be communicated. (20, p. 441-490)

In the case of farming an entirely different pattern prevailed. It was less centralized. Farmers were not concentrated in small areas. Each farm unit was a small business under separate management. Communication was much more difficult.

Leaders of the Nation realized that a Nation's economy could be no stronger than the weakest element in the total economic structure. They realized that agriculture was rapidly becoming the lagging segment--that something would need to be done to help farmers "keep up" with the other rapidly advancing elements of the Nation's economy. Research, teaching, and the dissemination of new ideas in farming were recognized as essential to a healthy and expanding agriculture. (55; 62; 20)

In 1862, the people of the Nation, through their representatives, enacted the Morrill Act of Congress which was the basic act in the establishment of Land Grant Colleges. Many of the Land Grant Colleges were colleges of "Agriculture and Mechanic Arts." It was believed that the agricultural colleges would educate the farmers in the area of agriculture. (55, p. 4-8; 62) Few farmers could stop farming for four years, however, to attend college. Most of those who did attend did not return to the

farms. This is true even in 1961. The agricultural colleges have done an excellent job of teaching and research and continue to find improved ways and means of disseminating new ideas among farmers. Nevertheless, agricultural colleges are still somewhat distant from the farmers.

Soon, following the establishment of agricultural colleges, the people realized that the colleges alone could not accomplish the task. Other ways should be sought to help farmers "keep up" with the rapid advances in science and technology in industry. For this reason, agriculture courses were added in the existing public schools. (55; 62)

The Types of Agricultural Courses That Were Tried.

Numerous approaches to educating farmers were tried. In some schools only farmers were enrolled in the agriculture courses. In others it was assumed that the majority of the farm boys would become farmers, consequently both farmers and farm youth were enrolled. Farmer enrollees attended classes for only a few hours per week, usually at night, since they were engaged in farming on a full-time basis. Generally, classes for farmers were concentrated more heavily during the winter months when farmers could leave their farming operations. Since schools traditionally had been for children, some schools placed little or no emphasis upon education for farmers, but taught agricultural subjects to those boys, and in some cases girls, who were regularly enrolled in the existing public school program. (55; 62)

The European system had been to build agricultural schools separate from the existing schools. This system and modifications of it were tried. In North Carolina, Farm Life Schools were established but these soon gave way to unified public schools in which broad curricula were offered, including agriculture. (55, p. 350-354)

Some of the early courses in agriculture were chiefly academic. In keeping with the purposes for which agriculture courses were developed, however, perhaps the majority were vocational in nature. Many schools provided school farms on which enrollees applied that which was taught. (55, p. 582-606) New ideas, practices, and research results were discussed in classes and applied on the school farms. Demonstration plots on school land were quite common. Several schools in North Carolina still support school farms or demonstration plots.

The Development of Federally Aided Vocational Education in Agriculture.

By 1917, the people of the Nation realized that the teaching of agricultural courses in the public schools was effective and desired to promote the idea. During 1917, Congress passed the Smith-Hughes Act which provided Federal aid to schools offering courses in agriculture, provided that the courses were vocational in nature. (2, p. 27; 46, p. 989) Farmers and high school boys who were preparing to enter farming were enrolled. The Act stated that "...the controlling purpose of such education shall be to

fit for useful employment; that such education shall be of less than college grade and be designed to meet the needs of persons over fourteen years of age who have entered upon or who are preparing to enter upon the work of the farm...." (2, p. 27) It stated further that schools in order to qualify for Federal aid "...shall provide for directed or supervised practice in agriculture, either on a farm provided by the school or other farm, for at least six months per year...." (2, p. 27-28) Subsequent Federal legislation has added emphasis to programs of vocational education in agriculture. (2, p. 31-41) Federal appropriations for vocational education in agriculture have been increased by more than 50 per cent since 1952. (26, p. 1-2) Perhaps current advances in science and technology are again causing national leaders to realize the importance of all phases of the national economy, as was true during and immediately following the Industrial Revolution.

What Effects Did Federal Aid Have Upon Agricultural Education in the Public Schools?

Upon passage of the Smith-Hughes Act by Congress in 1917, many school administrators and boards of education, experiencing difficulty in financing their schools, quickly converted their agriculture courses to "vocational agriculture" in order to qualify for Federal funds. (55) Thus, agricultural education in the public schools, other than vocational education in agriculture, practically disappeared. Iowa has been the chief state in which non-vocational agriculture courses have been maintained to any appreciable extent. (54) Many states, including North Carolina, have a few schools which offer courses in agriculture which are not Federally reimbursed courses. These courses are generally vocational in nature but for various reasons do not meet the standards required for Federal reimbursement.

THE EVOLUTION OF CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION IN AGRICULTURE

Curriculum development in vocational agriculture has not been static. Changes have been made in accordance with research and experimental programs. Sound educational principles have been used in developing curricula for the promotion of the teaching-learning process.

What Approaches to Curriculum Development Have Been Tried?

A. The Subject and Year Approach.

Soon after the passage of the Smith-Hughes Act by Congress in 1917, vocational agriculture for boys was developed according to the following plan: (55, p. 507)

Agriculture I (for freshmen) - Crops
Agriculture II (for sophomores) - Livestock
Agriculture III (for juniors) - Horticulture and Farm Mechanics
Agriculture IV (for seniors) - Farm Management

Despite the fact that the development of programs of education in agriculture were initiated to train farmers for proficiency in farming, early curricula were aimed more toward teaching boys about farming rather than teaching them to become effective farmers. Boys studied about agricultural topics in school and demonstrations were carried out on school farms or small plots on or near the school grounds. The curriculum was "bookish" and somewhat artificial. It was soon decided, however, that people did not farm by growing crops one year and livestock the next. Such an approach was not the most effective arrangement for teaching boys to become effective farmers. Thus, the curriculum was not adapted for vocational education in agriculture.

B. The "Cross-Sectional" Plan.

During the late 1920's, the plan was changed to a "cross-sectional" plan which provided instruction each year in each of the five major areas: crops, livestock, horticulture, farm mechanics, and farm management. Each year a new phase of the major area was studied or students studied the same phases to a greater depth. The new approach appeared to be founded better upon basic principles of learning. It was much more consistent with farming operations, more realistic, and more practical.

C. The Seasonal, "Enterprise and Job Analysis" Plan.

Soon, further emphasis was placed upon the same educational principles. Teachers began to teach more on a seasonal basis. Efforts were made to

teach in school those problems which students were currently facing on the farms. The theory was that the knowledge and understanding developed would be applied almost immediately on the farms. Less forgetting would occur. Once applied, there would be less likelihood of reversion to old methods and practices of farming. Also, the student would be less likely to forget something which he had actually applied.

Course content was based upon an analysis of the various crop and livestock enterprises and farm operations in the local communities. As an enterprise was analyzed into its major "jobs," the "jobs" were scheduled to be taught during that time of the school year in which they would be performed on the farms. (55, p. 139) For example, the corn enterprise might be analyzed and taught according to the following plan:

Enterprise and Jobs	Month to be Taught									
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	
Corn										
Selecting land			X							
Selecting seed				X						
Selecting fertilizer					X					
Preparing land							X			
Planting								X		
Cultivating									X	
Harvesting	X									
Marketing		X								

The study of corn would not only be spread over eight months, but would actually be divided into two separate school years. Harvesting and marketing would be taught during September and October of the sophomore year.

Emphasis on "Enterprise and Job Analysis" and "teaching on a seasonal basis" led to as unrealistic a situation as the first plan following the Smith-Hughes Act (Agri. I - Crops, Agri. II - Livestock, etc.). Teachers often found that they had jobs from many enterprises or areas to teach each month. It was quite possible that one class might study 20 different and unrelated jobs during a 20-day school month--a different topic each day. The subject matter became so "chopped up" and atomistic that students were fortunate if they were able to assimilate it and understand it as a major enterprise.

Educational research in the areas of interests, motivation, and retention was instrumental in bringing about the major changes in curriculum development. With respect to teaching vocationally and according to sound educational principles, each new approach to curriculum development was an improvement over the former approach used. Student interest was greater and motivation was much less a problem. Nevertheless, the limitations of the approaches lead to further study and improvement.

Increased Emphasis on Using Sound Educational Principles in Curriculum Development.

During the early 1930's, further educational research regarding interest, motivation, retention, and curriculum development had strong impact upon programs of vocational education in agriculture.

A. Relationship Between Learning Theory and Curriculum Development in Vocational Agriculture*

There are a number of theories of learning, but much confusion still exists among educators regarding how individuals learn. There appear to be several major areas from the field of learning theory, however, which are generally acceptable and which have direct implications for curriculum development: (1) readiness for learning, (2) motivation and learning, (3) organization in learning, and (4) transfer of training.

1. Readiness for learning.

Numerous studies have shown that a sufficient stage of physical, mental, and educational maturity is necessary before effective learning is possible. (26, p. 36-56; 39, p. 580-590; 51; 65, p. 299-324; 28, p. 325-360) First-grade teachers are usually aware of the concept of reading readiness, but teachers in the upper grades and high school and curriculum builders may all too often fail to recognize that readiness for learning is a prerequisite at all levels. In building a defensible curriculum, it is important that, for each group or class, activities and materials be provided which will fit a great range of maturity levels. Courses of study which provide a given text for a given grade or a given set of exercises which all students must do violate the principle of readiness for learning. (8, p. 2) Any type of curriculum arrangement which is to be successful must provide experiences which "begin where the individual is." Any other plan not only eventuates in ineffective learning, but inevitably produces frustration which may lead to behavioral disorders. (4, p. 484-489; 5, p. 19-35; 12; 36, p. 29-51; 40, p. 284-296; 56; 63; 66)

In vocational agriculture in North Carolina, ideally, the course of study is based upon the individual and composite educational needs of those enrolled in each class. The problems encountered and anticipated in the farming programs and on the home farms of the enrollees become the core of the educational program in vocational agriculture. Not only does curriculum development in vocational agriculture take into account "readiness for learning," but rate of development is held

*Much of this section has been adapted from item No. 8 of the Bibliography.

flexible. Since individual, on-the-job instruction and supervision is also provided, readiness for learning and rate of learning can be taken into account for individuals as well as for classes.

2. Motivation and learning.

Most psychologists and educators agree that an individual must be motivated in order to learn. (13, p. 261-275; 38, p. 262-266) Careful investigations by Mowrer, Hull, and others have suggested that learning is contingent upon satisfying needs of individuals. (41, p. 421-431; 42, p. 321-324; 25) Individuals possess numerous physical and social needs. In addition to these somewhat universal needs or drives, every individual develops his own personal needs and interests. (57; 3, p. 190-212)

The needs, wants, interests, and motives of individuals should be identified, and learning activities which take these into account should be provided by the school. The effective curriculum is one which is flexible enough to provide experiences which relate to the individual goals of class members. Such an arrangement makes for effective learning, and at the same time makes possible the development of new interests. (8, p. 162-163)

In vocational agriculture in North Carolina, ideally, the educational needs and problems encountered and anticipated in the farming programs and on the home farms of enrollees form the core of the course of study. To the enrollees, the course of study in vocational agriculture is realistic, practical, and meaningful; not merely some subject matter being imposed by the teacher.

3. Organization in learning and the curriculum.

Studies show learning proceeds much more rapidly and is retained much longer when that which is learned has meaning, organization, and structure. (58; 43, p. 65-71; 60; 31; 21, p. 415-423; 59) Perhaps too often students in public schools are asked to learn isolated sets of facts and information which are either unrelated to significant problems facing the learner or appear to him to be unrelated. Under these conditions it is not surprising that forgetting takes place on a vast scale. In a study by Brooks and Bassett (9, p. 200), pupils in American History classes forgot within 16 months' time approximately one third of the facts they knew at the close of the semester. In a study by Layton (35, p. 52), it was found that pupils in elementary algebra classes forgot within a period of one year two thirds of the material they had known at the end of the course.

No such drop in retention seems to occur, however, in those cases where the learner engaged in activities which are organized in terms of his purposes and where his objectives are to solve his problems rather than learn facts or even concepts or principles which relate less directly to his needs and interests. (67, p. 30)

Considering what is known about organization in learning and education, it would appear that courses of study should be designed which make it possible for students to work on problems, projects, and units which possess a high degree of internal organization. Much has been written recently about the core curriculum. One of its greatest strengths is probably the fact that it cuts across subject matter boundaries and draws upon materials from all fields for the solution of problems. (53, p. 464-531)

In North Carolina, ideally, the course of study in vocational agriculture is organized in terms of the purposes, objectives, and problems of the enrollees in planning and carrying out effective farming programs.

4. Transfer of training and the curriculum.

Thorndike's (59, p. 358-359) theory of identical elements and numerous studies (26, p. 666-668; 58, p. 1-22 and 83-98; 30; 22, p. 22-24) related to transfer of training appear to make it clear that curricula should contain activities and problems which are very similar to those which the individual will encounter in life outside the school. In fact, the only reason for the existence of public schools is to affect life outside the schools.

In vocational agriculture, much of the curriculum is based directly upon activities and problems which are not merely similar to "real life problems," but rather which are real life problems. This is not to deny the value of transfer of training in vocational agriculture. In fact, there should be a transfer in one's ability to identify and solve problems in one area of farming to other areas of farming. Certainly, the basic principles involved in learning to balance a ration for swine could be transferred to the area of cattle feeding.

5. Summary.

It has been emphasized that the effective curriculum is one which:

- a. makes provision for varying maturity and experience levels of enrollees,
- b. gears learning activities to the needs and goals of enrollees,
- c. provides problems, projects, and units of experience which possess meaning and structure for the enrollees, and
- d. carefully selects and appraises projected student activities in terms of their transfer value to life's situations.

Curriculum development in vocational agriculture takes into consideration all four of the preceding educational and psychological concepts. In terms of sound educational and psychological theory and principles, curriculum development in vocational agriculture appears to be well founded.

B. What Are the Patterns of Curriculum Development?

Leaders in the area of curriculum development in the nation differ widely in their approaches. Some prefer to think in terms of Subject Curriculum, Activity Curriculum, and Core Curriculum. (53) Others prefer to think in terms of objectives underlying the educational program. (52, p. 20-37) The latter appears to be widely accepted and gives positive direction to the development of curricula in terms of stated objectives. Three commonly identified patterns in terms of objectives are: (52, p. 20-37)

1. Common information pattern.

The objective in this pattern would be the imparting of information to all students - to have the learners know common information.

- a. The goals for the course are teacher determined.
- b. The learners should take the goals and purposes on the authority of the teacher.
- c. The primary purpose of the course is to acquire a body of content or information.
- d. It is assumed that all learners should come out of a particular course with a common body of subject matter or "how to do it" practice.
- e. The teacher plans all the details, and the specific information to be studied, even before seeing the learners.
- f. Decisions as to what should be studied are based on the teacher or expert authority.
- g. The goals and purposes for all learners in the class are to be almost uniform.
- h. Goals and purposes are handed from the teacher to the learner.

2. Common units pattern.

The objective in this pattern would be to teach the learners how to attack problems within a unit or problem area predetermined by the teacher or higher authority.

- a. Learners are given some freedom in deciding how they will attack the problems in the area - what they will do.
- b. Learners must study and learn to solve all the major problems within the unit that they will face after leaving school.
- c. Learners' goals and purposes are given considerable weight within areas determined by the teacher.
- d. The teacher makes the decisions regarding what units or problems should be studied and the order or sequence in which they should be studied.
- e. The goals, purposes, and problems to be studied are teacher determined and all individuals of the class work on the same unit.

3. Common process pattern.

The objective in this pattern would be for the individuals to learn the process and attitudes necessary for identifying or discovering

and attacking the new problems he faces now and he will likely face after leaving school.

- a. The learner has a major share in setting up his individual goals in line with the purposes of the course.
- b. The learner helps decide and select the problem areas upon which he will work.
- c. The learner uses many facts, resources, and information relative to the problem he has chosen to solve.
- d. The learner considers many alternatives before reaching a decision or before doing the job.
- e. The learner comes out with an improved ability to attack realistic problems.
- f. The emphasis here is on the process rather than the answer although the correct answer or result is desired.
- g. This may be quite upsetting to a teacher or administrator who likes to see things pre-patterned on a logical basis--that is, logical to the teacher.

The common process pattern is generally accepted as a basis for developing curricula in vocational education in agriculture. Individuals enrolled and their farming programs are the basis for curriculum development. There is one thing in common in curriculum development in vocational education in agriculture; the process of developing the curriculum, and not the subject matter. Subject matter in vocational agriculture differs greatly within the State and even within some counties. Thus, it is essential that course content in vocational agriculture differ with differing types of farming.

C. The Use of Farm Problems of the Enrollees as a Basis for Curriculum Development in Vocational Agriculture.

As increased emphasis was placed on sound educational principles, school farms rapidly disappeared. The application phases of that which was studied were transferred to the home farms of enrollees. (16; 29; 55, p. 582-606) Subsequently it was believed that: (16; 29)

- **Students were more interested in practices applied on their home farms than in practices on school farms.
- **Students were more actively involved in the application phases of the educational program.
- **Application was on a larger scale and covered the entire school district rather than being concentrated on one school farm.
- **More people saw the results of new methods and practices.
- **Farmers and boys were less skeptical of new ideas, practices, and methods observed on their own farms and farms of neighbors.
- **Learning was more strongly assured when those enrolled attempted to apply on their home farms that which was studied in school.

**Retention of that which was learned was greater when applied by enrollees on their home farms.

**The educational program was less expensive when the application phases were transferred to the home farms.

Following the transfer of the application phases of the educational program to the home farms of enrollees, teachers visited on the home farms of those enrolled to provide individual and small group instruction and supervision. The on-farm visits were valuable in that opportunities were provided for teachers to:

- *provide individual on-farm instruction and supervision specifically suited to the individuals' situations and needs,

- *evaluate the effectiveness of their teaching,

- *identify problems, interests, and needs of those enrolled, and

- *secure realistic teaching materials.

When the application phase of the program was first moved to the home farms of enrollees, each boy was expected to have a "project," a crop or livestock enterprise, with which he would be expected to apply that which was studied in class. Rather quickly teachers began to realize that boys did not learn to farm by growing corn, cotton, a hog, or any one specific enterprise. Farming generally embodied several enterprises which were interrelated, and complementary to each other, such as corn and hogs. Thus, the "project" ideas were rapidly replaced with the "supervised farming program" concept.

1. Supervised farming program concept.

For the high school boy, hearing something discussed in class does not necessarily mean he understands it; or, even if he apparently understands it, it does not necessarily follow that he possesses the ability to apply it. Thus, the boy, his parents, and the teacher study the boy's home farm and consider the boy's interests, and cooperatively decide upon a miniature farming program which the boy may undertake, and which will be under his own management. Instruction is provided by the teacher and supervised by both the teacher and parents to aid and guide the boy in the development of his farming program. As the boy demonstrates his ability to organize, plan, and carry out an effective program, he looks to his parents and the teacher for help in expanding it in size and scope.

a. Productive projects.

A productive project is a business venture for experience and profit involving the production of crops or some type of livestock. A boy may begin his first year in vocational agriculture with a farming program of one gilt and some corn as productive projects. The teacher would provide instruction in the area of

selecting a breed of hogs, selecting a good animal, feeding a balanced ration, caring for the gilt, breeding program (when to breed so the litter will reach market weight at the highest prices), caring for the sow at farrowing time, how to construct a hog house (this is often done in the school shop and would include basic skills in blueprint reading, securing lumber, carpentry work, actual construction, etc.), plus marketing, and other applicable areas. Likewise, in the area of corn, instruction would be provided. There are many facets which may be added or led into such as crop rotations, soil conserving practices, feed analysis, and the entire area of how much the boy should expand his corn or hog enterprises or at what point it would be most economically sound to stop expansion in these and add other enterprises.

b. Improvement projects.

In addition to productive projects a boy would have one or more improvement projects as a part of his supervised farming program. An improvement project includes a series of closely related practices which take place over a relatively long period of time, and which may or may not produce an immediate cash return, but which will increase the value of the farm or phases of it, or improve home living. Examples of improvement projects are: swine herd improvement, soil and water conservation and management, and homestead beautification.

c. Supplementary farm practices.

The third part of a boy's supervised farming program is supplementary farm practices. These are generally unrelated practices taken on by the boy for experience and may include such things as seeding a lawn, dehorning cows, pruning fruit trees, and culling the poultry flock. These practices give a boy experience in areas otherwise not included in the production and improvement projects of his supervised farming program.

2. Soundness of the supervised farming program concept.

Educational and psychological leaders in analyzing the supervised farming program concept used in vocational agriculture have indicated that it is sound educationally, economically, psychologically, and socially.

a. Educationally.

The supervised farming program ties knowledge and understanding together with doing. Learning involves more than knowledge and understanding; it involves the ability to make application. Learning involves a change in behavior, and perhaps the most obvious indication of learning is how one does things, or how he changes the way he does things - whether it be in the

management of his hog business or how he uses farm records in analyzing his farm business as a basis for improvement.

Perhaps one of the greatest criticisms of the public school system today is its inability to get that which is taught carried over into life outside of school. The strength of vocational agriculture and the supervised farming program concept lies in the fact that they are aimed entirely at relating in-school activities and out-of-school activities.

b. Economically.

From an economical point of view the supervised farming program of a student enables him to grow into farming based upon keeping, analyzing, and using sound records as a basis for his decision making. Students are taught to plan thoroughly, considering all facets of an enterprise before trying it in their farming programs. Once a particular enterprise is selected, a student is taught to study it, plan effectively, and keep detailed records culminating in not only expenses and receipts, but also in showing returns for labor, returns on investments, net returns, and other pertinent data. In the final analysis a student can analyze his progress and outcome as any business organization can. He can pinpoint strengths and weaknesses as a basis for improving.

Ideally, a boy begins his first year in vocational agriculture with a small farming program--one which he can manage. As he grows in his ability to plan, make decisions, and manage, his farming program is expanded. The money netted from his first year's operation is invested in a larger program, and the farming program continues to expand in size and scope throughout his high school course in vocational agriculture. Some boys are able to expand their programs more rapidly than others, and some boys have greater opportunity for expansion than others. As in life outside school and in adult life, each is encouraged and helped to develop to his fullest potential. Many boys are able to make, productively invest or save enough money from their farming programs while in high school to enable them to get started in farming on their own or in partnership with their families upon graduation from high school. Other boys choose to use their earnings to further their education in agriculture.

c. Psychologically.

From a psychological point of view, the supervised farming program concept appears to be sound. It gives the boy a feeling of accomplishment, a feeling that he is producing something and contributing something to his own welfare and to the welfare of the family. It enables him to grow realistically into independence rather than to emerge suddenly into independence upon graduation from high school with a questionable feeling or doubt as to his ability "to do something." It contributes to emotional

and mental maturity. Perhaps American society is overcrowded now with youth who have graduated from high school but somehow have not taken on, acquired, or developed a sense of self-realization. Recently, an educational psychologist who lives in a city and has a teen-age son commented on the value of farming programs. He stated that he would "give anything" if he had something like vocational agriculture provides, through supervised farming programs, for farm boys in which his son could participate. Much can be said about the splendid work done by various youth groups and organizations in the urban areas, but somehow there appears to be a certain degree of artificialness to many of them. Vocational agriculture is realistic. The supervised farming program concept is realistic.

d. Socially.

In a democracy social growth and development, and an awareness of and interest in social problems and needs, are regarded as highly important. Since a democracy is founded upon the principle of participation by all individuals, it is important that individuals be given an opportunity for and guidance in social development. The worth of the individual is regarded as foremost. The supervised farming program concept begins with the individual, his interests and needs, and his home farm situation, but what he does cannot be separated or isolated from society. The fact that a boy grows in ability in decision making, management, and economics makes him more socially acceptable even within his family. His views and ideas become more sought after. In short, he grows out of a position of immaturity into one of sharing with the adulthood of the family in decision making.

Outside the family and in his peer group he is looked upon as one who "makes his own way," one with judgment, one who no longer has to look to his parents for an allowance, but one who has emerged or is emerging as an independent individual. He is "looked up to," respected, and accepted as a capable individual. In short, his supervised farming program strengthens and aids in developing his social growth, maturity, and independence. He possesses a business, plans it, makes decisions regarding it, does the work, markets the products, and invests the returns. He grows into an integral unit of our democratic society.

How Can the FFA and NFA Organizations Contribute to the Curriculum in Vocational Agriculture?

The Future Farmers of America (FFA) and the New Farmers of America (NFA), organizations whose objectives are a part of vocational agriculture, have been organized to serve two main functions:

1. To motivate members (students enrolled in vocational agriculture).
2. To provide wholesome and democratic leadership learning situations.

The FFA was organized in 1928. Its counterpart in Negro departments of vocational agriculture, the NFA, has since been organized. In 1945 under the George-Barden Federal Act, legislative status was given to the organizations and provisions were made for their supervision. The Act states that supervisory functions may include supervision by the vocational agriculture teachers of the activities related to vocational education in agriculture, of the Future Farmers of America and the New Farmers of America. (2)

As in other states, North Carolina has a chartered State association which is made up of local chapters organized in the schools offering vocational agriculture. Membership is voluntary and active members come from those boys enrolled in vocational agriculture. Provision is also made for associate and honorary members.

The underlining philosophy and objectives of the FFA are indicated in the aim and purposes to which the FFA subscribes. The primary aim is the development of agricultural leadership, cooperation and citizenship. The purposes of the FFA and the foundation upon which it is said to be built embodies leadership and character development, sportsmanship, cooperation, service, thrift, scholarship, improved agriculture, organized recreation, citizenship and patriotism. These aims and objectives which have been the guidelines for many years have received little, if any, criticism with respect to their being desirable and appropriate.

The FFA and NFA have been instrumental in helping reach one of the objectives of vocational agriculture--leadership development. In fact, many of the outstanding citizens in various communities and college students who are former members of outstanding FFA or NFA chapters would testify that they attribute their leadership ability and desire to "serve" directly to their participating experiences in the chapter activities. These experiences, gained through conducting chapter meetings and participating in activities such as parliamentary procedure and public speaking and discussions together with the related values gained by traveling to various places in the county and state, have been most helpful. Too, the motivation which comes from competing in contests enables one to experience the need and appreciation for learning thoroughly an area of study.

Just as vocational agriculture has needed and continues to need the FFA and NFA in helping reach the leadership development objective, it needs the student motivation which FFA and NFA can provide in reaching the other objectives effectively. For instance, most objectives of vocational agriculture are reached through the means of the students' experiences with their practical experiences. Thus, a strong supervised practice program is essential to good vocational teaching-learning in agricultural education. If the NFA and FFA are to be most helpful to the curriculum in vocational agriculture, the supervised farming program and its related activities should receive a prominent place in the FFA and NFA activities, (awards, contests, tours, projects, publicity, etc.), especially on the local level.

Several leaders in agricultural education have suggested ways of improving the FFA and NFA. For example, Krebs in a recent editorial commented on the need for a modern "operational" philosophy. He stated: "The creed and purposes of the FFA are indicative of the philosophy upon which the FFA was

founded, but the activities sponsored and conducted in the name of the FFA indicate the philosophy upon which the FFA actually operates. Although little can be found to challenge in the 'founding' philosophy of FFA, our 'operational' philosophy could stand some modernization." (33)

Krebs specific suggestions stressed the need for the operational philosophy to place more emphasis on boy leadership, local activity, local responsibility, and cooperative activities and place less emphasis on competitive activity.

Binkley, in writing about planning and carrying out FFA activities on a sound basis, stated: "The starting point, for a particular department of agriculture, should be the course of study. The learners and their needs are a center factor in course building. FFA activities can be set up on a sound basis, can be made easier and can be made more permanent when they take their 'cue' from sound agriculture as set up in the course of study." (7)

The FFA and NFA organizations provide a good structure for students of vocational agriculture to practice such things as how to conduct and take part in a public meeting, speak in public, buy and sell cooperatively, solve their own problems, finance themselves, and assume civic responsibility. The organizations have a good potential in providing the student motivation necessary to good vocational teaching-learning in an agricultural education curriculum. In accomplishing these worthwhile undertakings the FFA and NFA should be used to the fullest, giving appropriate emphasis to each undertaking.

In developing a good FFA or NFA chapter activities program, which helps reach the objectives in the agriculture curriculum, there appear to be three major pitfalls: (1) using class time for activities of the extra-curricular type, (2) letting the FFA and NFA activities become ends themselves rather than a means or method of reaching an end (educational goal), and (3) over-emphasis on contests.

PROBLEMS RELATED TO CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION IN AGRICULTURE

Introduction

Before an effective curriculum can be developed, several important questions should be answered:

1. What policies are in existence within which framework the curriculum is to be developed?
2. What are the objectives which are to be reached through the curriculum?
3. What implications do conditions in agriculture have for educational programs in agriculture?
4. Who are to be enrolled in the curriculum?
5. Who should develop the curriculum?
6. Upon what bases should the curriculum be developed?

These appear to be a few of the more important questions and problems which relate directly to curriculum development in vocational education in agriculture. This section will deal with these major areas.

What Are the Policies Affecting Curriculum Development in Vocational Education in Agriculture?

A. Federal Policies.

Federal funds constitute approximately 23 per cent of the funds for the support of vocational agriculture in North Carolina. If Federal funds are used in supporting programs of vocational education in agriculture, the programs must operate consistently with Federal policies. A study of Federal policy statements will reveal that Federal policies provide only a broad general framework within which programs of vocational agriculture should be developed.

Several parts of the Federal Vocational Education Bulletin No. 1 have implications for curriculum development. The fact that teachers teach farmers as well as boys has implications in that less time would be available to devote to boys. On-farm supervision would need to be coordinated with other aspects of the teaching. The instruction would deal with practical farm problems and would be based on the farming

programs of the individuals enrolled. None of the statements of policy appear to be contradictory to sound educational theory and principles.

B. State Policies.

As a condition for receipt of Federal funds for Vocational Education, the State Board of Education is required to adopt and submit to the U. S. Office of Education a State Plan for Vocational Education. The Plan is a contract or agreement between the State and Federal levels with provisions which insure that Federal funds are spent in keeping with Federal policies. In the past, new State Plans have been requested periodically, usually every three to five years. Recent Federal policies require the states to submit permanent plans.

A permanent plan is now being prepared for North Carolina. Every effort is being made to make the plan as broad and general as possible so as to allow sufficient flexibility. In developing the new State Plan the following assumptions are made:

1. It is assumed that our society will continue to change, that broad and flexible policies will be needed to provide direction for educational programs in the changing society, and therefore that the State Plan should not include restrictions unnecessarily.
2. The State Plan should promote the philosophy that vocational education in agriculture is an integral part of the total public school educational program.
3. As much local interest, initiative, and control of education should be maintained as possible.
4. The State Board of Education has every right to and will desire to add details to the State Plan for use within the State which are not included in the Plan, or will desire to develop or have developed for their approval a separate plan within the framework established by the Plan sent to the U. S. Office of Education.

C. Local Policies.

A number of studies (37; 48; 66) show that well-formulated policies on the local level regarding vocational agriculture are difficult to find. If vocational agriculture is to be a "local program" and the curriculum is to be developed locally, there should be local policies to give direction to the development of the curriculum.

Local policy makers (members of the board of education with the assistance of others) should develop written policies for at least the following areas:

1. Develop and adopt educational objectives for agricultural education.

2. Develop policies with respect to ways and means of determining the agricultural education needs of the people.
3. Develop policies which allow the educational needs to be met and to insure that they are met in the most efficient and effective way.

What Are the Objectives of Vocational Education in Agriculture?

The Smith-Hughes Act of Congress in 1917 which provided Federal aid for vocational education in agriculture was apparently responsible for the transformation of the majority of courses in agriculture in the public schools to courses in vocational agriculture. The Smith-Hughes Act stated that "...the controlling purpose of such education shall be to fit for useful employment; that such education shall be of less than college grade and be designed to meet the needs of persons over fourteen years of age who have entered upon or who are preparing to enter upon the work of the farm...." (2, p. 27) Subsequent Federal Vocational Education Acts concurred with the Smith-Hughes Act regarding purposes of vocational education in agriculture. "These acts, therefore make it mandatory that the agricultural education program be vocational in character if it is to be aided by Federal funds appropriated under the provision of these acts." (19, p. v)

The first list of educational objectives for vocational education in agriculture was published in May, 1931. They were revised and published again in 1940. (18) The third and most recent revision was published in 1955. (19) It states that: (19, p. 21)

Vocational education in agriculture is recognized and developed as a definite part of the program of public education. Therefore, a statement of the aims and objectives of this phase of vocational education must be in harmony with and support the general objectives and philosophy of the whole public-school education.

It further states that the major objectives of vocational education in agriculture are to develop effective abilities of those enrolled to:

1. Make a beginning and advance in farming.
2. Produce farm commodities efficiently.
3. Market farm products advantageously.
4. Conserve soil and other natural resources.
5. Manage a farm business effectively.

6. Maintain a favorable environment.

7. Participate in rural leadership activities. (19, p. 4-5)

Several rather specific conclusions regarding present education objectives in vocational agriculture appear to be that the objectives: (11)

1. Have been brought forward to the present largely as they were when first formulated;
2. Assume that pupils who enroll in vocational agriculture have made a final decision in their choice of an occupation;
3. Assume that vocational agriculture graduates for the most part will continue to farm; and
4. Place primary emphasis on developing effective ability to make a beginning and advance in farming.

Current theory of curriculum development in vocational agriculture appears to be well based in terms of sound educational theory and principles and in keeping with present objectives. The Nation's agriculture, however, has undergone profound changes since the educational objectives in vocational agriculture were formulated. Significant socio-economic trends may have implications for re-examining the objectives. Too, the need for other types of objectives and education may be evident. (11; 23, p. 220 and 229; 6, p. 76-79; 49, p. 58 and 56-57; 15; 44)

What Implications Do Conditions in Agriculture Have for Educational Needs*?

The type of society a nation has and strives for determines the general and vocational education needs of the people. In a progressive nation with a "changing agriculture," new educational needs become evident.

A. What Are the Conditions and Trends Surrounding Agriculture?

Among others, there are at least three conditions essential to the progress of a nation, state, or community. They are (1) economic growth, (2) high consumers' income, and (3) technological advance. Today they are considered to be essential for the welfare and security of the Nation. Logically, then, the people of the communities that make up the Nation consider those three conditions desirable and essential. Government programs and policies are directed toward economic growth and progress. But with this "progress" (enabled by the three stated conditions) agriculture is drastically affected, making changes and adjustments necessary.

*This section is adapted from a study listed under Bibliography No. 45.

Some of the major changes and trends in agriculture that have been identified are:

1. A decrease in number of farms and farm employees;
2. An increased use of and need for efficient farm management, mechanization and operating capital;
3. An increase in number of large farms and small part-time farmers with a decrease in the traditional family-size farmers;
4. An increase in agricultural businesses, industries, and professions; and
5. An improvement in living conditions on farms.

While North Carolina's agriculture has not changed to the degree that agriculture in many other states has changed, adjustments in agriculture (especially in the number and skill of farmers) have been needed. Adjustments will continue to be needed as changes become more pronounced in North Carolina's growing industrialization.

B. What Educational Needs Are Implied?

In general, the conditions in agriculture imply that educational needs require that increased emphasis be given to providing the following:

1. Guidance, counseling and occupational exploration for youth and adults;
2. Appropriate vocational education which is closely related to an individual's interests and opportunities;
3. Economic and management phases of farming;
4. Education for nonfarming agricultural occupations; and
5. Education and guidance to farmers who are or may become part-time farmers.

It should be emphasized at this point that educational programs of vocational agriculture are said to be most effective when the instruction is centered around the students' educational needs in agriculture rather than around the needs of agriculture. The idea is to educate persons in solving their problems in agriculture and desirable changes in agriculture will be effected. This approach to teaching, based on sound educational principles, may be limited to some extent by the ability of the teachers and students to use it within the framework of a changing agriculture. For instance, in using the approach the problems of the students relative to agriculture tend to be those identified within the local community and home farm. This approach, it appears, should continue to be used to its fullest, but consideration must also be given to people's needs relative to agriculture as it relates to other parts of economic and social structure.

Who Should Receive Agricultural Education in the Public Schools?

Since the National and State society is in a dynamic state of change, there appears to be a need for re-examining present programs, including who is to be served by the public schools.

A. Poor Balance Between Vocational Education in Agriculture for Farmers and for Prospective Farmers.

A study of the Smith-Hughes Act of Congress and subsequent vocational acts, State and Federal policy bulletins, and other related literature clearly indicates that the purpose of Federally aided vocational education in agriculture was and is to train farmers and young men who plan to engage in farming for proficiency in farming. (34, p. 8-9) Yet, somehow, major emphasis has been placed upon education of the "prospective farmers." This is especially true in North Carolina. Table 1 shows the percentage of enrollment in vocational agriculture in 1958-59 in Virginia, North Carolina, and South Carolina who were farmers and prospective farmers (high school boys).

Table 1. Enrollment of Farmers and High School Boys in Vocational Agriculture in North Carolina and Neighboring States, 1958-59*

	Enrollment		Percentage of Total Enrollment Who Were:	
	High School Boys	Farmers	High School Boys	Farmers
Virginia	10,957	12,466	47	53
North Carolina	35,404	16,852**	68	32
South Carolina	13,123	30,837	30	70

In North Carolina 68 per cent of the total enrollment in vocational agriculture were high school boys. That is, two boys were enrolled for each farmer. In South Carolina there were more than two farmers enrolled for each boy--the exact reverse of the North Carolina situation. For Virginia slightly more farmers than boys were enrolled. Furthermore, there are several times as many adult farmers eligible for enrollment than there are boys.

*Data abstracted from 1959 Digest of Annual Reports of State Records for Vocational Education, U. S. Department of Health, Education, and Welfare.

**These data do not include individuals enrolled in the Institutional On-farm Training Program for veterans. Since 1946, the work with veterans and, before that, the Food Production War Training Program, made up an important part of the work with adults.

In comparing enrollments another way, one can observe that only 9 per cent of the 190,000 farmers in North Carolina are enrolled in vocational agriculture. Yet, as many as 30 per cent of the high school boy enrollment of 120,000 are enrolled. Moreover, studies show that less than one third of the boys who study vocational agriculture in high school will become farmers. Thus, with boys even if a perfect job is done effectiveness is reduced to less than 33 per cent. In terms of the basic purposes of vocational agriculture - to train present and prospective farmers for proficiency in farming - any work that is done with farmers, who are earning a living farming, can be regarded as effective.

An analysis of the situation from the way in which teachers of agriculture spend their time presents an even greater distorted picture. Table 2 indicates that teachers of agriculture probably devote about 64 per cent of their time to the program for high school boys and only about 4 per cent to the program for farmers. The remainder of their time could not be attributed to either groups specifically.

Table 2. Time Devoted by Teachers of Vocational Agriculture to Farmers and to High School Boys

Source of Data	Percentage of Teachers' Time Devoted to the Program for:	
	High School Boys	Farmers
Study Conducted in:		
Eight Pacific States ^a	64	4
Ohio ^b	63	5
Illinois ^c	75*	25*
Georgia ^d	40	--

a - See No. 32 in Bibliography

b - See No. 47 in Bibliography

c - See No. 50 in Bibliography

d - See No. 61 in Bibliography

* Confined to "teaching activities" alone

These and other available data indicate the imbalance between vocational education in agriculture for farmers and for high school boys. There appear to be several factors which have influenced the program in this direction:

First, state laws require children to attend school. The high school boys are a captive audience. When school opens the boys will be there, whereas adults are not compelled to attend. Perhaps teachers have been prone to devote their time and energies to the captive audience, and if any time remained, to work with adults.

Second, traditionally schools have been for children. Many farmers may not realize that vocational education in agriculture is designed for them also. Some may feel that any time the teacher spends with them in groups or as individuals is actually encroaching upon time specified for the boys.

Third, many school administrators apparently are not aware of the responsibility of teachers of agriculture to work with adults or they may not accept adult education as a part of the duties and responsibility of the school. In many schools in North Carolina the teaching schedules are arranged in such a manner that the agriculture teachers must remain on the school campus for the entire school day just as are all other teachers who do not teach adults and who do not have responsibilities for providing individual and group on-the-job instruction away from the school campus.

Fourth, agricultural teachers may not be well trained in the area of adult education, and consequently feel more competent at devoting their time and effort to programs for high school boys.

These are but four factors which have influenced the areas of emphasis. Certainly there are more. There are also numerous reasons for placing more emphasis on adult education. Whereas youth a few generations ago had little or no formal school requirements in order to be equipped or prepared to take their position in adult life, present-day youth find it difficult to secure employment without at least a high school education, and a college education is becoming more and more mandatory. As more and more years of formal education are required, and with the rapid advancements in science and technology, it is realized that people cannot learn all that is needed during youth. Even if they did, so much of it would be forgotten before needed, much would be out-dated within a few years, and much addition in the way of developments and achievements would have occurred. Thus, continued learning is essential. There is much more to be ignorant about today than there was last year, or even last week. Too, developments and advancements are being made so rapidly that informal means of education are no longer adequate. Adult education for farmers is not something which is merely desirable--it is a "must" if agriculture is to keep pace with the other rapidly advancing segments of our society. Furthermore, the percentage of the total population in farming is dropping; the total population is increasing. Farm surpluses are but a temporary affair. It has already been predicted that a major war would find the Nation short on agricultural production, and that total production will need to be doubled by the turn of the century in order to feed a growing population and a population demanding better diets.

B. Need for Some Type of Agricultural Education in the Public Schools Other Than Vocational Education in Agriculture.

At the time when attention was first focused upon the need for educational programs for farmers approximately 90 per cent of the gainfully employed people in the Nation were engaged in farming.

Perhaps vocational agriculture was the type of agricultural education most needed. Two important changes have taken place, however, during the past century.

First, the percentage of gainfully employed people in the Nation who are in farming has dropped to approximately 10 per cent; 20 per cent for North Carolina. Should not there be some type of agricultural education for the 90 per cent in the Nation and 80 per cent in North Carolina who are not farming? Such education could be nonvocational and directed toward giving enrollees a broad and general understanding and appreciation of agriculture, its importance to our total economy, and problems facing agriculture, including farming and agricultural businesses. Public Schools in Missouri teach "Science-Agriculture" in grades seven and eight. (1) The relationship between the two major areas of science and agriculture is emphasized. The courses relate science and agriculture to present day problems of living with views of causing new concepts and understanding to emerge and to strengthen basic democratic values. (1)

Despite the rapid conversion of agricultural courses into courses in vocational agriculture following the passage of the "Smith-Hughes Act" in 1917, some agricultural educators began early to question the soundness of the changes. In 1935, Deyoe (17, p. 319) emphasized the need for teaching nonvocational agriculture. He stated: (17, p. 319)

It is indeed unfortunate that many people in our schools and out have developed the viewpoint that agriculture has little or nothing to contribute to the general cultural development of those not preparing for or engaged in the vocation of farming. If we but make a careful analysis of enriched living and if we are willing to accept the idea that our schools should become increasingly effective in life enrichment for the oncoming generation, the importance of agriculture as a subject for general education will become increasingly evident.

Similarly, Davenport and Noland stated: (14)

We do not teach geography in the elementary schools to prepare pupils to become professional geographers, nor do we teach mathematics to prepare mathematicians. These subjects are taught that pupils may better understand contemporary life as it is affected by these areas of knowledge. So industrial arts are taught in schools, not to make craftsmen, but to make citizens who better understand the industrial world. By the same token, there is a realm of agricultural arts, which should be taught,

RECOMMENDATIONS* FOR AGRICULTURAL EDUCATION
WITH SPECIAL EMPHASIS ON VOCATIONAL AGRICULTURE

The recommendations that follow are based upon the findings of several recent studies that were conducted by groups and individuals with whom Curriculum Study cooperated. Brief descriptions of these studies are found in Appendix A. Other studies and literature were reviewed for the purpose of comparing results and securing information on areas not included in the current studies.

I. General Recommendations:

- A. Support, supervision, and administration by local school people are essential for quality programs of vocational education.

Vocational education in the public schools should be administered, supervised, and evaluated locally. State and Federal regulations should be kept to a minimum. Consultant services should be available to and freely used by local school administrators.

- B. To provide quality education and to administer appropriate patterns of educational experiences, cooperation and good communication must exist among the various types of education and public school services.

Conditions and trends in education require that all types of general education and vocational education, including related services such as practical arts education and guidance-counseling, become increasingly integrated and complementary to one another. Also, each must increasingly provide some services which are more specialized or technical than previously. Some reasons are: (1) some new occupations require broad vocational education backgrounds; (2) some occupations require more technical or specialized education than previously; (3) schools vary in their type and size; (4) occupational opportunities are expanding as a result of new occupations and an increase in the migration rate associated with communication improvements; and (5) diversity of interests, backgrounds, and occupational opportunities of students is evident within areas served by schools.

- C. All feasible approaches to meeting the vocational education needs of youth and adults should be explored.

The primary purpose of vocational education is to train both adults and youth for useful employment. Various occupational areas

*While these recommendations are made for all, it should not be concluded that none of them is presently being carried out. Many of the recommendations are being practiced in the public schools, but to provide unified direction a rather comprehensive coverage was considered to be needed.

are assigned to each of the several phases of vocational education, i.e. vocational agriculture provides training for useful employment in farming (agriculture). To provide for local needs and equal educational opportunities, as many vocational education and related services as are economically feasible to offer should be provided through the local school and Industrial Education Centers.

II. Specific Recommendations:

A. Federal, State, and Local Policies:

1. It is recommended that as much local autonomy be fostered as is feasible to still assure the spending of State and Federal vocational education funds in keeping with State and Federal policies.
 - a. The State Plan for vocational education (a contract between the State and Federal authorities) should be broad and flexible and not contain restrictions unnecessarily. This is not inconsistent with the present Federal policies which are broad and general, serving only as a guide.
 - b. The State Board of Education should develop or have developed for its approval an operational policy manual, consistent with the State Plan, including only those policies needed to assure that Federal and State funds are spent for intended purposes.
 - c. A "local plan" system for vocational education (a contract between the State and local school authorities) should be initiated. The local plan should describe the vocational education programs needed; how they would be administered, supervised and evaluated; and serve as the basis for granting Federal and State funds.

B. Objectives for Vocational Agriculture:

The major objectives of vocational agriculture are to develop effective abilities of those enrolled to:

- *Make a beginning and advance in farming.
- *Produce farm commodities efficiently.
- *Market farm products advantageously.
- *Conserve soil and other natural resources.
- *Manage a farm business effectively.
- *Maintain a favorable environment.
- *Participate in rural leadership activities.

1. It is recommended that the major objectives for vocational agriculture be modified in such a way that adequate consideration is given to the following areas:

- a. Coordinating vocational agriculture with the total school curriculum. That is, when the program of vocational

agriculture is developed, educational needs to be met in other courses should be taken into account, including both the vocational and practical arts educational needs and the general educational needs.

- b. Providing education for nonfarming agricultural occupations.
- c. Providing vocational guidance and occupational exploration for youth and adults who may leave farming to enter other occupations.
- d. Providing education for part-time farmers.
- e. Increasing emphasis on education for the economic and management phases of agriculture.

2. It is recommended that specific objectives and policies for local programs of vocational agriculture be developed.

Stated objectives are necessary to give direction to a program--what the teacher(s) and students should work toward. Accomplishments measured against stated objectives provide the usual basis for evaluating a program. How a teacher spends his time and what is taught and learned should be determined by the stated objectives and not by such things as the special interests and abilities of the teacher. Local policies should be developed to stimulate the accomplishment of the objectives.

C. Local Study:

1. It is recommended that local people study and define the role that vocational agriculture should fill in their schools.

Study groups should be adequately represented by school administrators, teachers, consultants and local citizens so as to get all points of view and ample concern and support for making any needed changes. Such study groups should probably cover the following areas, among others, in their study and evaluation:

- a. The use of good counseling and guidance procedures as a basis for enrolling students.
- b. Scheduling teacher-time during the school day for adult education.
- c. Developing objectives consistent with the people's educational needs relative to agriculture.
- d. The extent to which teachers (and students) are performing and should perform school and community services which have little or no educational value.

- e. The relationship between the educational objectives and the laboratory and shop facilities.
- f. The addition of courses more suitable than vocational agriculture in meeting the needs of youth who have nonagricultural occupational interests.
- g. The extent to which local citizens need to help plan and evaluate their programs of vocational agriculture.
- h. The establishment of local, written policies to enable and assure the defined role of vocational agriculture to be functional.

D. Developing the Curriculum for Vocational Agriculture:

1. It is recommended that suggested units of subject matter be provided to those teachers who cannot presently overcome the limitations in developing a good vocational education curriculum locally.

Current philosophy of curriculum development for vocational agriculture suggests that what is studied is derived from the students' educational needs in agriculture. A study of the school district, including its relationship to the State and Nation and the students' farming programs is used in identifying the students' needs in agriculture.

This method of curriculum development places heavy responsibility upon teachers of vocational agriculture, school administrators, and local people; but is considered essential to effective vocational teaching-learning in agriculture. While this method is sound educationally and philosophically and is essential for most effective vocational teaching-learning, its effectiveness is limited by the teachers' time and ability, the available consultant help, and to some extent the interests of the students. Until these limitations are overcome for many of the schools, perhaps vocational agriculture would be more effective if the teachers were provided some subject matter (teaching-learning experiences) which could be adapted to local communities and to problem-solving type teaching.

2. It is recommended that the students be the center of learning rather than agriculture, using agricultural subject matter and practical experiences as a means of learning.

Effective vocational teaching in vocational agriculture requires that effective use be made of practical experiences gained by the students through their farming programs, tours, field trips, demonstrations, and other practical experiences. This enables students to be the center of learning rather than the agricultural subject matter by itself. It requires that students help decide what is learned--learning to identify problems, a part of the process in learning to solve them.

3. It is recommended that increased emphasis be given to identifying and satisfying the people's educational needs relative to adjustments needed in a "changing agriculture."

Many changes have occurred in agriculture and our economy within the last half century. For the nation it can be said that the society has changed from an agricultural society to an industrial one. Conditions such as national economic growth, high consumer's income and technological advances have been and continue to be responsible for this trend. Thus, adjustments in agriculture are continuously needed, especially in number of farmers and their job requirements for proficiency.

In providing education for adjustments in agriculture, several areas would need to be emphasized:

- a. Education for nonfarming agricultural occupations
- b. Guidance for those who may leave farming
- c. Part-time farmer education and guidance
- d. Economic and management phases of farming and agriculture

Also in determining the local objectives for agricultural education the over-all needs of the enrollees should be considered because many people in agriculture have need, perhaps unrecognized, for understanding their opportunities in agriculture compared to other opportunities, together with an understanding of the conditions affecting the opportunities.

4. It is recommended that a prominent part of the FFA* and NFA* activities be directed toward motivating students in participating in practical experiences such as having good farming programs.

The major objectives of vocational agriculture are reached through the students' educational-work experiences in agriculture. Thus, students must have good supervised practice programs to profit most effectively from vocational agriculture. The FFA and NFA should be used to the maximum in motivating the students and others in overcoming roadblocks associated with organizing supervised practice programs.

5. It is recommended that area sponsored FFA and NFA contests, which are subject-matter oriented, have universal educational value and not be overemphasized.

Since in many instances state and nationally sponsored subject-matter oriented contests are used as units of instruction, such contests should be evaluated periodically and

* The Future Farmers of America (FFA) and the New Farmers of America (NFA).

sponsored only when their educational values are universal needs of the students within the sponsoring area. The sponsored contests should not be carried beyond the point of diminishing educational returns and intended purposes, especially in using school instruction time. For example, practicing parliamentary procedure is probably an important activity for the FFA and NFA to undertake; but such activities should not be taught and practiced in the classroom to the exclusion of more important agricultural education course content.

6. It is recommended that the curriculum in vocational agriculture be challenging to the abilities of all students.

Inherent in the right and opportunity of interested persons to enroll in vocational agriculture is the obligation of the teacher to provide educational experiences which challenge their ability. Agriculture will require many types of occupations in the future. Those who will be managing and operating farms successfully will need a high level of education in management, among others.

E. Enrollment:

The emphasis given to youth and to adults should be based upon the relative interests and needs of each, coupled with a consideration of conducting the most efficient and effective program of vocational agriculture possible with the resources available.

1. It is recommended that good counseling and guidance procedures be used in selecting and grouping students.

Student selection is essential to any program of vocational education for it to be most effective. In enrolling youth in vocational agriculture, experience shows that those who do not conduct a supervised practice program and those who take vocational agriculture mainly for the shop work which is included greatly handicap a program in carrying out the educational objectives for vocational agriculture. Vocational agriculture is designed for, and the policies, objectives and ideal methods for planning and carrying out a program of vocational agriculture is directed toward farmers and prospective farmers. Vocational agriculture is valuable and usually recommended for students with interests in nonfarming agricultural occupations, including those who plan to continue their education beyond high school.

Suitable criteria for selecting students, based on good guidance procedures, should be worked out so as to allow administrators sufficient scheduling flexibility and provide teachers the types of class groups which enable effective vocational teaching-learning.

2. It is recommended that increased emphasis be given to adult education.

People have traditionally thought that schools are for children; however, the opinions of parents and farmers and the need for agricultural education in the various communities indicate that emphasis to adult education be greatly increased.

Adult education programs are broader than just enrolling adults in organized classes. For example, in many departments time is devoted to conducting special tours or demonstrations, individual on-farm instruction, assisting with community development activities, and other community agricultural organizations. Many teachers spend time in performing individual services to farmers. Extra care should be taken so as to keep the adult program an educational program rather than a service type program.

F. Scheduling Courses and Teacher Time:

1. It is recommended that every effort be made to minimize the limitation that school schedules pose on the students' educational opportunities in electing subjects such as vocational agriculture.

The organization of the total school program, especially scheduling of courses and the number and types of course offerings, can restrain or make easier the accomplishment of many of the other recommendations made.

2. Specific teacher time during the school day should be scheduled for adult education as well as for youth education.
3. Individual instruction on the student's farm is essential to an effective program of vocational agriculture and adequate teacher time should be scheduled for it.

Recent studies show that more visits should be made than have been made to the students. Consideration should be given by school administrators in assigning normal school duties and in scheduling classes so that adequate and effective on-farm instruction may be given to boys and to adults.

Visits should be purposeful and of an instructional type, relating to farm practices and scheduled as far as practical to allow the greatest amount of efficiency.

G. Professional Improvement of Teachers and Some Teacher Roles:

1. It is recommended that strong in-service education and other professional improvement programs for teachers of agriculture be provided.

The tremendous changes that occur in agriculture make it necessary that a strong in-service education program be provided to teachers of agriculture.

New technology for agriculture is continuously developing. Teachers of agriculture through their instructional program in vocational agriculture can shorten the gap between the development and the adoption of new technology provided the teachers know of such technology when it becomes available.

There are also other areas which are equally important to consider in planning an educational program. For example, as new technologies for agriculture are applied it becomes necessary for adjustments in agriculture to be made. When new technology is adopted in agriculture without needed adjustments being made in agriculture, the farmer finds himself improved very little economically. Teachers need continuous help in determining plans for their programs, arriving at courses of study, and effectively carrying out their program of vocational agriculture.

Further study is needed to determine the most needed areas of professional improvement and the most effective methods of providing teacher education or assistance.

2. The teacher of agriculture should perform the role of an educator.

Vocational agriculture is an educational program. The program's existence is based upon educational purposes. Teachers of agriculture, who are employed to carry out a program of vocational education in agriculture should not spend their time on nor encourage the use of facilities for service activities to the exclusion of educational activities.

There appear to be some services which the people need, particularly of the veterinarian type, that are not teachable in programs of vocational agriculture and that expert personnel should perform. If expert personnel need to be more conveniently available, perhaps teachers of agriculture and other agricultural workers can assist the people in securing such personnel.

3. It is recommended that teachers of agriculture assist wherever possible in helping the school provide a good vocational guidance program.

Teachers of agriculture are in a good position to know and continually learn the occupational opportunities and their educational requirements within the field of agriculture. Teachers of agriculture should help as needed in providing guidance and counsel to those students who choose to continue their agricultural education beyond high school.

H. Facilities, Equipment, and Operating Funds:

1. It is recommended that programs of vocational agriculture be financed entirely from school funds.

The total program of vocational agriculture should be financed from school funds rather than from departmental fund raising projects. Teachers should submit annually to the school officials a budget statement on such things as equipment, teaching aids and references, and consumer supplies. The budget should be evaluated on the basis of the objectives of the total program.

2. It is recommended that appropriate and adequate facilities and equipment which are essential to an effective program of vocational agriculture be provided.

Types of facilities will vary among departments of vocational agriculture, but there are several departments in the State that do not measure up to the minimum standards that have been established. Some are inadequately or inappropriately equipped. The funds for facilities and equipment should be spent so the greatest amount of benefit may be realized in reaching the educational objectives of the program of vocational agriculture.

I. Administration, Supervision, and Consultant Services:

1. It is recommended that the major responsibility for administering and supervising programs of vocational agriculture be accepted locally.

While the State Board of Education is charged with the responsibility for the total school system and must maintain a degree of authority, major responsibility for administering and supervising local school programs should be a local one. The initiation of the "local plan system" which is recommended above would aid both the state and local school authorities in administering vocational education.

2. It is recommended that sufficient state-level consultant help be made available so that they may be used freely in helping local people plan and evaluate programs of vocational agriculture.

Effective programs of vocational agriculture require that local studies be made to determine educational needs, curricula be developed which will fulfill these needs, and good teaching materials be selected and prepared. In performing these functions, many school administrators and teachers of agriculture need special consultant help.

J. Exploring New Approaches for Providing Appropriate and Needed Education:

1. It is recommended that new approaches and patterns for providing agricultural education and other vocational and practical arts education in the public schools be explored.

Only one vocational or practical arts course for boys is offered in most of the high schools in North Carolina. The small number of boys enrolled is largely responsible for this. These smaller schools are predominantly rural schools and offer vocational agriculture. Additional types of vocational and practical arts education are needed for some of the youth and adults in many of these schools.

So that more effective vocational education in agriculture may be provided to youth and adults and so that the needed education is provided to rural people, the following approaches should be explored.

- a. Provide agricultural business and technology education, especially to post-high school students.

With the increase in specialization and number of agricultural occupations, new approaches should be explored for providing agricultural education in addition to the presently offered. Presently existing agricultural education in the public schools has been designed "to train present and prospective farmers for proficiency in farming." This aim was well suited to the pattern of agriculture in our State several years ago when agriculture and farming were synonymous.

A larger number of occupations in agriculture, other than farming, have emerged and are emerging in our dynamic society. These occupations lie chiefly in the areas of marketing and processing of agricultural products and the supplying of services to farmers.

Plans should be made to provide agricultural business and technology education throughout the State where the needs justified it.

- b. Provide general vocational courses at the junior high school and/or early high school levels.

At the junior high school and early high school levels it appears that special emphasis should be given to providing educational experiences and services which help students to obtain an understanding of the world of work and to develop planfulness relative to making educational and occupational choices. In the larger schools industrial arts courses and

guidance services are provided and come nearest to meeting this need. In the smaller schools vocational agriculture probably comes nearest to meeting this need.

To better meet this apparent educational need, all vocational and practical arts education courses and guidance services should be evaluated in light of the need and local situation and replanned as needed. In Agriculture I, for example, increased emphasis might be given to providing the common vocational skills that undergird the world of work and other educational experiences which help students to develop interests, understandings and knowledge relative to occupational opportunities and requirements. Strictly vocational agriculture would be emphasized at the late high school and post-high school levels.

- c. Provide vocational education in agri-business at the high school level.

For some schools, especially those near areas where students will enter nonfarming agricultural business occupations upon graduation, arrangements should be made so that appropriate vocational education is provided. In some schools, for example, units or courses in agriculture, business, and distributive education might be combined with supervised work experience in an agricultural business for some students.

- d. Appropriate vocational education for the upper grade students should be provided.

For some schools which cannot be consolidated presently, offering vocational courses on an area basis for those students who would be profited and could be transported to area vocational centers should be explored.

REFERENCES CITED IN THIS REPORT

1. A GUIDE FOR SCIENCE-AGRICULTURE: GRADES 7-8-9 (Missouri) Publication No. 105-G, 1957 Tentative Report, State Board of Education, Columbus, Missouri. 233 pp.
2. ADMINISTRATION OF VOCATIONAL EDUCATION, Voc. Ed. Bul. No. 1 (Rev. 1958) U. S. Department of Health, Education, and Welfare, Washington, D. C. 1958. 44 pp.
3. Allport, Gordon W., PERSONALITY: A PSYCHOLOGICAL INTERPRETATION, New York: Henry Holt and Company, 1937.
4. Anderson, R. G., "Two Schools and Their 'Problem Cases'." PROGRESSIVE EDUCATION, 11:484-489. 1934.
5. Bain, W. E., "A Study of Attitudes of Teachers Toward Behavior Problems," CHILD DEVELOPMENT, March, 1934. pp. 19-35.
6. Berg, Gordon L. "Geared to a Modern, Highly Specialized Agricultural Community, Related Occupations Is Adopted as Tomorrow's Vo-Ag Program, Today." CO. AGT. AND VO-AG TEACHER, April, 1957. pp. 76-79.
7. Binkley, Harold, "Making the FFA Contribute," THE AGRICULTURAL EDUCATION MAGAZINE. March, 1961. p. 201.
8. Blair, Glenn M., "How Learning Theory Is Related to Curriculum Organization" JL. OF ED. PSY., 39:161-166, 1948.
9. Brooks, F. D. and S. J. Bassett, "The Retention of American History in the Junior High School," JL. OF ED RES., 18:200, October, 1928.
10. Cardwell, J. N., "Is Vocational Agriculture Justified in City Schools?" AG. ED. MAGAZINE, 18:3:25 September, 1945.
11. Chase, Daniel C., "Socio-Economic Trends in Agriculture as Related to the Educational Objectives in Vocational Agriculture." Thesis, Ed. D. Pennsylvania State University, Library, Penn. State University, State College, 1954. 174 pp.
12. Cutts, N. E. and N. Moseley, PRACTICAL SCHOOL DISCIPLINE AND MENTAL HYGIENE. Houghton Mifflin Co., 1941. 311 pp.
13. Dashfield, J. F., "A Survey and Synthesis of Learning Theories," PSYCHOLOGICAL BULLETIN, 32:261-275. 1935.

14. Davenport, Eugene and A. W. Nolan, AGRICULTURAL ARTS. Champaign, Ill. The Garrard Press, 1938.
15. Davids, Richard C., "They're Taking a Fresh Look at Vo-Ag," FARM JOURNAL. October, 1957, pp. 30-31, 145-146.
16. Deyoe, G. P., FARMING PROGRAMS IN VOCATIONAL AGRICULTURE, Danville, Illinois: The Interstate, 1953. 604 pp.
17. Deyoe, G. P., "Some Possibilities for Teaching Non-Vocational Agriculture," WISCONSIN JOURNAL OF EDUCATION, 67:7:319 March, 1935.
18. "Educational Objectives in Vocational Agriculture," Voc. Div. Mono. No. 21, Federal Security Agency, U.S. Office of Education, Washington, D. C. 1940. 14 pp.
19. EDUCATION OBJECTIVES IN VOCATIONAL AGRICULTURE, Voc. Div. Mono. No. 21, Rev. 1955., U.S. Department of Health, Education, and Welfare, Washington, D. C., 14 pp.
20. Edwards, Newton and Herman G. Rickey, THE SCHOOL IN THE AMERICAN SOCIAL ORDER, New York: Houghton Mifflin Company, 1947. 880 pp.
21. Guilford, J. P., "The Role of Farm in Learning," J.L. OF EXPTD. PSY. 10:415-423, 1927.
22. Guthrie, E. R., "Conditioning: Theory of Learning in Terms of Stimulus, Response, and Association," 41st Yearbook of the Natl. Society for the Study of Educ., Part II, THE PSYCHOLOGY OF LEARNING, 1942. pp. 22-24.
23. Hamlin, H. M., In "Letter to the Editor," AG. ED. MAGAZINE, 39:220,229 April, 1958.
24. Hilgard, Josephine R., "Learning and Maturation in Pre-School Children," J.L. OF GENETIC PSYCHOLOGY, 41:36-56. 1932.
25. Hull, C. L. PRINCIPLES OF BEHAVIOR, New York: D. Appleton-Century Co., 1943.
26. James, Gerald B., "Let's Face the Facts," Unpublished paper. Department of Agricultural Education, N. C. State College, Raleigh, N. C. 1958. 2 pp.
27. James, William, PRINCIPLES OF PSYCHOLOGY, Vol. 1, New York: Henry Holt and Company, 1890.
28. Jensen, Kai, in CHILD DEVELOPMENT AND THE CURRICULUM, 38th Yearbook of the Natl. Soc. for the Study of Education, Part I, 1939. pp. 325-360.

29. Johnson, E. J. and W. N. Elam, "Guiding High School Students of Vocational Agriculture in Developing Farming Programs," Voc. Div. Bul. No. 254, Agri Series No. 65, U. S. Department of Health, Education, and Welfare, Washington, D. C. 82 pp., 1954.
30. Judd, C. H., EDUCATIONAL PSYCHOLOGY, Boston: Houghton Miffling Co., 1939, 514 pp.
31. Katona, G., ORGANIZING AND MEMORIZING, New York: Columbia University Press, 1940.
32. Knuti, L. L. and others, "Use of Teacher Time by Teachers of Vocational Agriculture in Eight Pacific States During the Academic School Year." Department of Agriculture Education, Montana State College, Bozeman, Montana, 1953. 5 pp.
33. Krebs, A. H., Editorial: "Needed--A Modern 'Operational' Philosophy," AG. ED. MAGAZINE, March, 1961. p.195.
34. Lamar, Carl, DETERMINING THE NEED FOR VOCATIONAL AGRICULTURE IN KENTUCKY. College of Education, University of Kentucky, June, 1957. 143 pp.
35. Layton, E. T., "The Presistence of Learning in Elementary Algebra," JL. OF ED. PSY. 23:52. January, 1932.
36. Lewis, W. D., "Some Characteristics of Children Designated as Mentally Retarded, as Problems and as Geniuses by Teachers," JL. OF GENETIC PSY. 70:29-51 1947.
37. Liner, H. L., "An Analysis of County and City Policies Concerning Vocational Agriculture in North Carolina." Thesis, M.Ed., N. C. State College, Raleigh, N. C., 1957.
38. Mcconnell, T. R., "Reconciliation of Learning Theories," in the PSYCHOLOGY OF LEARNING, 41st Yearbook of the Natl. Soc. for the Study of Education, Part II, pp. 262-266. 1942.
39. McGraw, M. B., "Neural Maturation as Exemplified in Achievement of Bladder Control," JL. OF PEDIATRICS, 16:580-590, 1940.
40. Mowrer, O. H., "Discipline and Mental Health," HARVARD EDUCATION REVIEW, 17:284-296, 1947.
41. Mowrer, O. H., "Motivation and Learning in Relation to the National Emergency," PSYCHOLOGICAL BULLETIN, 38:421-431, 1951.
42. Mowrer, O. H., "The Law of Effect and Ego Psychology," PSYCHOLOGICAL REVIEW, 53:321-324, 1936.
43. Newman, E. B., "Forgetting of Meaningful Material During Sleep and Working," AMER. JL. OF PSY., 52:65-71., 1939.

44. Pasour, E. C., "The Relation of Socio-Economic Trends in Agriculture to the Educational Objectives of Vocational Agriculture." Unpublished paper. Dept. of Ag. Educ., N. C. State College. July, 1957. 16 pp.
45. Porter, G. Herman, "An Analysis of the Clientele for Vocational Agriculture." Research Problem, M. Ed., N. C. State College, Raleigh, N. C. 1960.
46. Phipps, L. J. and G. C. Cook, A HANDBOOK ON TEACHING VOCATIONAL AGRICULTURE, Danville, Ill.: The Interstate, 1952. 1018 pp.
47. Purkey, D. R., "Time Used for Professional Activities by Teachers of Vocational Agriculture in Ohio." Thesis, M.S. The Ohio State University, Columbus, Ohio, 1951. 65 pp.
48. Price, R. B., "Policy Making in Vocational Agriculture," Thesis M.Ed., (First Draft) Dept. of Agri. Educ., N. C. State College, Raleigh, N. C. 1958. 63 pp.
49. Schaller, H. L., "Watchman! What of the Vo-Ag Program?" (An editorial) BETTER FARMING METHODS, June, 1956. p. 58, 56-57.
50. Scott, Marshal J., "A Study of Illinois Vocational Agriculture Teachers' Use of Time," Mimeograph, College of Education, Div. of Ag. Ed., Univ. of Ill., Urbana, Ill. 22 pp.
51. Shirley, M. M., THE FIRST TWO YEARS: A STUDY OF TWENTY-FIVE BABIES, Vol. 1: POSTULAR AND LOCOMOTOR DEVELOPMENT. Univ. of Minnesota Press. 1931.
52. Simpson, R. H., IMPROVING TEACHING-LEARNING PROCESSES, New York: Longmans, Green and Co. 1953. 487 pp.
53. Smith, B. O., W. O. Stanley, and J. H. Shores, FUNDAMENTALS OF CURRICULUM DEVELOPMENT, Yonkers-on-Hudson, New York: World Book Company, 1950. 780 pp.
54. Starrak, J. A. and Max W. Kneddy, GENERAL AGRICULTURE IN THE HIGH SCHOOLS OF IOWA, Research Bulletin 327, Agri. Expt. Sta., Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa. May, 1944. 44 pp.
55. Stimson, Rufus W. and Frank W. Lathrop, HISTORY OF AGRICULTURAL EDUCATION OF LESS THAN COLLEGE GRADE IN THE UNITED STATES, Voc. Div. Bulletin No. 217, Agricultural Series No. 55, Federal Security Agency, U. S. Office of Education, Washington, D. C., 1942. 647 pp.

56. Teagarden, Florence M., CHILD PSYCHOLOGY FOR PROFESSIONAL WORKERS, Prentice-Hall, Inc. Rev. Ed. 1949.
57. Thomas, W. I., THE UNADJUSTED GIRL, Boston: Little, Brown and Co., 1923.
58. Thorndike, E. L., EDUCATIONAL PSYCHOLOGY, Vol. II, THE PSYCHOLOGY OF LEARNING, New York: Teachers College, Columbia Univ. 1913.
59. Thorndike, E. L., HUMAN LEARNING, New York: Century Co. 1931.
60. Thorndike, E. L., "Mental Discipline in High School Studies," JL. OF ED. PSY. 15:1-22 and 83-98. 1924.
61. Tolbert, Ralph H., "The Use of Professional Time by Teachers of Vocational Agriculture in Georgia." Dissertation Ph.D., Ohio State Univ., Columbus, Ohio. 1954. 200 pp.
62. True, Alfred Charles, A HISTORY OF AGRICULTURAL EDUCATION IN THE UNITED STATES - 1785-1825, U. S. Dept. of Agri., Publication No. 36, July, 1929. 436 pp.
63. Tucker, Louise E., A STUDY OF PROBLEM PUPILS, Teacher's College Contribution to Education, No. 720, Teacher's College, Columbia Univ., 1937.
64. Ward, A. B., "Local Policy Making for Education in Agriculture in Selected Public Schools of Illinois," Dissertation, ED.D., University of Illinois, Urbana, 1954.
65. Washburne, Carleton, in CHILD DEVELOPMENT AND THE CURRICULUM, 38th Yearbook of the Natl. Soc. for the Study for Educ., Part 1, 1939. p. 299-324.
66. Wickman, E. K., CHILDREN'S BEHAVIOR AND TEACHERS' ATTITUDES, The Commonwealth Fund, N. Y. 1928.
67. Word, A. H. and Robert A. Davis, "Individual Differences in Retention of General Science Subject-Matter in the Case of Three Measurable Teaching Objectives," JL. OF EXPTD. ED. 7:30. Sept, 1938.

SELECTED REFERENCES RECOMMENDED FOR FURTHER STUDY
IN AGRICULTURAL EDUCATION

1. AGRICULTURAL EDUCATION MAGAZINE, Interstate Publishing Company, Danville, Illinois. Most every monthly issue has articles dealing with the curriculum in vocational agriculture.
2. Byram, Harold M., GUIDANCE IN AGRICULTURAL EDUCATION, The Interstate, Danville, Ill., 1959. The book is devoted to integrating agriculture education and guidance with respect to recognized principles and practices for both fields. The guidance role of the teacher of agriculture under varying school conditions is discussed.
3. Deyoe, G. P., FARMING PROGRAMS IN VOCATIONAL AGRICULTURE, The Interstate, Danville, Ill., 1953. This book provides a detailed treatment of principles and procedures for conducting farming programs with all groups enrolled in vocational agriculture.
4. Hamlin, H. M., AGRICULTURAL EDUCATION IN COMMUNITY SCHOOLS, Interstate Publishers, Danville, Illinois, 1949. Comprehensive, thought-provoking and authored by a long-time leader in agricultural education.
5. Hammonds, Carsie, TEACHING AGRICULTURE, McGraw-Hill Book Company, Inc., New York, 1950. The book is outstanding in discussing how to plan programs of agriculture education consistent with good principles of learning.
6. North Carolina Public Schools. VOCATIONAL AGRICULTURE: A GUIDE FOR COURSE PLANNING, Raleigh, N. C. 1960. The guide presents basic educational objectives around which a local program of vocational agriculture should be developed and suggests guiding principles and procedures for planning courses. Also an example of one teacher's program is illustrated.
7. Phipps and Cook, HANDBOOK ON TEACHING VOCATIONAL AGRICULTURE, The Interstate, Danville, Illinois, 1956. Practical suggestions for all phases of vocational education in agriculture are included. The book is designed to develop an understanding of the philosophy behind the techniques suggested.
8. Three very promising publications are completed or are in the process of being developed by special committees from the Agricultural Education staffs of Teacher Training, Teaching Materials, and Supervision: (1) "Planning Adult Education Programs in Vocational Agriculture" was recently completed and distributed, (2) another dealing with planning supervised

practice programs for students is planned and is expected to be completed within about two years, and (3) another dealing with student selection is also expected to be available in about two years.

9. THE ADVISORY COUNCIL FOR A DEPARTMENT OF VOCATIONAL AGRICULTURE, Voc. Ed. Bul. No. 243, Agri. Series No. 60, Office of Education, U. S. Dept. of Health, Education, and Welfare, U. S. Govt. Printing Office, Washington, D. C. 1957. (15¢) Discusses the development and purposes of advisory councils and expected results in using them. Provides suggestions for establishing an advisory council.

APPENDIX A

RECENT NORTH CAROLINA STUDIES IN AGRICULTURAL EDUCATION

Within the last three years, studies for improving vocational agriculture have been conducted in three areas of the State. One was conducted in the District V Vocational Agriculture Supervisory District which encompasses 25 western North Carolina counties. Another similar study was made in Montgomery County, located in the south central portion of the State. Two other studies, one for the white and one for the Negro schools, were conducted within the District II Vocational Agriculture Supervisory District which encompasses 12 southeastern counties. Also, two recent studies which were state-wide in scope and conducted by individuals were extensively reviewed. Brief descriptions of these studies follow. These studies together with other related studies reviewed lead to the development of the recommendations included in the Guide.

District V Study

The District V Advisory Committee for Vocational Agriculture conducted a study to (1) learn the present status of vocational agriculture, (2) determine the improvements needed, and (3) indicate ways of implementing desirable changes. Information was secured from all teachers of agriculture and their principals, and a sample of students, former students, farmers, and parents within the District V area. The area encompassed 25 western North Carolina counties and contained 96 schools that offered vocational agriculture.

The Committee after studying their 257-page report of data¹ in group² meetings, subcommittees, and individual assignments, made recommendations for improving vocational agriculture. A series of small-group conferences are now being conducted by the District V Supervisor of Vocational Agriculture with school superintendents, principals, and teachers of agriculture for the purpose of discussing the study findings, committee recommendations, and means of implementing needed changes.

Many significant findings of the study are included in Appendix B which is a summary of the Committee recommendations.

Montgomery County Study

The Montgomery County Study was sponsored by the County Agricultural Curriculum Study Committee. It was one of several committees organized to

¹(Report of Data) Advisory Committee for Improving Vocational Agriculture. 1959. Studies for Improving Vocational Agriculture in District V (25 western counties), North Carolina, nonpublished report, Office of District Supervisor, Asheville. 257 pp.

²(Recommendations) Advisory Committee for Improving Vocational Agriculture in District V (25 western counties), N. C., 1960. Study Description and Committee Recommendations, Office of District Supervisor, Asheville. 19 pp.

make a county-wide study of the Montgomery County Schools. The Committee's study involved five schools and was patterned after the District V Study with respect to purposes, survey forms used, and sources of information. Most of the findings³ were consistent with and supported the District V Study. Other relevant information needed for planning programs in the new consolidated schools was secured. Based on the information collected, the committee made its recommendations.⁴

District II Studies

A study group in Vocational Agriculture Supervisory District II conducted an occupational status study of former students of vocational agriculture. Special emphasis was given to those who were employed in non-farming agricultural occupations. The District II area encompasses 12 southeastern North Carolina counties. Information on selected former students of 70 schools was secured.⁵

A similar type study⁶ was made in 20 Negro schools of approximately the same area--nine southeastern counties. The findings of both studies show that one fourth of the former students who were employed in agricultural occupations were employed in nonfarming occupations.

State-Wide Studies

A. Adult Education Study:

Clary made a study⁷ to learn the attitudes of superintendents, principals, and teachers of vocational agriculture toward the adult

³Agricultural Committee, 1960, Studies for Improving Agricultural Education in Montgomery County, North Carolina. Office of Superintendent Montgomery County Schools, Troy, N. C. 198 pp.

⁴Agricultural Committee, 1960, Studies for Improving Agricultural Education in Montgomery County (Committee Recommendations). Office of Superintendent, Montgomery County Schools, Troy, N. C. 11 pp.

⁵Study Group for Improving Vocational Agriculture in District II, 1960, "An Occupational Status Study of Former Students of Vocational Agriculture with Emphasis on Occupations Related to Farming." Office of District Supervisor, Whiteville, N. C. 17 pp.

⁶Vocational Agriculture District Supervisors and Teacher Groups of Nine Southeastern Counties, "An Occupational Status Study of Former Students of Vocational Agriculture with Emphasis on Occupations Related to Farming." Agricultural and Technical College, Greensboro, N. C. 1961. 12 pp.

⁷Clary, Joe R., "Attitudes of Public School Personnel Toward Adult Education in Agriculture in North Carolina." Research Problem, M. Ag. Ed., North Carolina State College, Raleigh, N. C. 1960.

education phase of the vocational agriculture program. He chose a sample of 100 from each group. Among other findings, it was learned that teaching high school boys is considered the major function by a majority of superintendents and principals. Agriculture teachers saw their function to include teaching adults as well as boys. However, all three groups agreed that schedules should provide time for work with adults. Superintendents and principals indicated that the area in which they needed most help was developing policies for adult programs. Agriculture teachers indicated their greatest need was in additional training.

B. Overview of Vocational Agriculture:

A study⁸ conducted by Porter presented an overview of vocational agriculture relative to (1) conditions in education and agriculture which influence its clientele (enrollees) and function, (2) who were its clientele, and (3) who should be its clientele.

Among the findings were that the policies, objectives and ideal methods for carrying out vocational education in agriculture were directed toward farmer clients. Yet, a majority of those who were enrolled as high school boys had vocational interests other than farming. It was recommended that objectives be modified to include consideration of (1) over-all needs of enrollees, (2) agricultural occupations other than farming, (3) guidance for those who may leave farming, (4) part-time farmers, and (5) economic and management phases of agriculture.

⁸Porter, G. Herman, "An Analysis of the Clientele for Vocational Agriculture." Research Problem, M. Ag. Ed., North Carolina State College, Raleigh, N. C. 1960.

APPENDIX B

RECOMMENDATIONS FOR IMPROVING VOCATIONAL AGRICULTURE IN DISTRICT V, NORTH CAROLINA*

Based upon the knowledge gained through a comprehensive study of vocational agricultural programs in District V, the Advisory Committee for Vocational Agriculture has developed and adopted some recommendations with regard to improving vocational education in agriculture in the district.

The recommendations are presented by major areas, which are applicable to a program of vocational agriculture in a public school. In many instances, recommendations are made in conjunction with a statement which indicates the study findings.

Many of the recommendations are stated in general terms or as principles since it was decided that details and specific plans would vary among different schools and thus, should be worked out for each school by local school officials, teachers, and local people rather than by a district group.

Many of the recommendations which indicate changes that should be made in a program can be initiated almost immediately. Some programs, however, are presently organized in such a manner that considerable reorganization would be needed in order to incorporate needed changes within the programs. Also, it is realized that other parts of the school program in some schools would need to be changed or reorganized before the programs of vocational agriculture could make some of the needed changes. However, the committee believes that those responsible for administering, supervising and carrying out a program of vocational agriculture should make every effort to encourage and/or provide the leadership necessary to accomplish needed changes which will improve vocational agriculture in public education.

Purposes and Direction for and Objectives of Vocational Agriculture.

The people in District V, North Carolina need and want vocational agriculture which is provided in the public schools.

The public schools exist for educational purposes. Vocational agriculture is an integral part of the total educational program of a high school and community and should be planned and developed around a community's educational needs in the area of agricultural vocations. That is, a program of vocational agriculture should, as should other vocational programs in the public schools, be based upon educational objectives and planned for those for which it is intended.

*Adapted from: Advisory Committee for Improving Vocational Agriculture in District V (25 western counties) N.C. Study Description and Committee Recommendations, Office of District Supervisor, Asheville, N. C. 1960.

Data collected in the District V Study imply that the objectives of vocational agriculture should be broad enough to include education for persons with interests in occupations related to farming or part-time farming. The data also show that as many as one half or more of the high school students enrolled in vocational agriculture will be employed in nonagricultural occupations. Many of these students take vocational agriculture for the shopwork which is included, thus limiting the effectiveness of the programs of vocational agriculture.

Numerous leaders in vocational agriculture and other vocational subjects throughout the Nation have indicated that in vocational subjects strong emphasis should be given to late high school and adult education. Some of their reasons are: (1) More basic education is now required for normal living in our society than earlier. As society becomes more complex, more basic education will be needed. (2) There is evidence available to indicate that children of elementary or early high school are not ready to select their life's work and to enter upon intensive vocational preparation for it, nor is their basic education complete enough in many cases to do so. It appears that the student's need for guidance should and will cause a growth and expansion of occupational information, guidance, counseling, and exploratory courses. (3) More mature persons have selected or can select their life's work and can profit greatly from vocational education because of their special interests and motivation; thus, greater efficiency is effected in vocational education programs with these persons than with the less mature persons. (4) Adults want and need more vocational education than they are now being provided.

Based upon the types of programs of vocational agriculture that now exist in District V and the direction in which it appears desirable for education in vocational agriculture to move, the following courses of actions are necessary and greatly in need of accomplishment.

1. Improve the guidance and counseling of students as a basis for enrolling high school students in vocational agriculture.
2. Encourage the consideration and possibly the addition of exploratory courses such as industrial arts, nonvocational agriculture, and occupational information on the elementary and/or early high school level.
3. Greatly increase the emphasis given to adult education.
4. In order to accomplish the needed changes, school administrators and teachers of agriculture should become better acquainted with the purposes and objectives of vocational agriculture so that they may effectively develop objectives for vocational agriculture for their local situation.
5. The public should be informed and kept informed as to the objective of the program of vocational agriculture in order that the people may understand the program's educational services available and its responsibility to them.

Enrollment and Student Selection

Although in most communities the needs for vocational education in agriculture may be greater and the vocational program may be more effective and efficient at the adult level, many schools will need to continue to plan programs of vocational agriculture with more emphasis given to high school students than with adults. However, every effort should be made in all schools to move into the direction of basing the emphasis given to boys and to adults upon the relative interest and needs of each, coupled with a consideration of conducting the most efficient and effective program that can be had for the time and facilities available.

The enrollment of students who cannot carry out supervised farming programs and/or who take vocational agriculture mainly for the shopwork which is included greatly handicap a program in carrying out educational objectives for vocational agriculture. More emphasis should be given to orienting and selecting high school boys for enrollment.

Suitable criteria for selecting students should be worked out which will be acceptable to school administrators and teachers. For example, the study conducted in the District and other studies show that the student's reasons for wanting to take vocational agriculture and his occupational plans along with his father's occupation are good measures to consider in counseling with potential enrollees. Since the student's willingness and ability to carry out creditable farming programs affect the benefits he can get from the course, this should be considered as a condition for enrollment.

A method of determining enrollment should involve a type of orientation program for potential enrollees plus consultations with parents.

Adult Education

The Study showed that major emphasis and priority in most schools were given to high school boys rather than to adults. The opinions of the persons interviewed in the study indicated that emphasis to adult education should be increased, but more of them thought that the high school program for boys should continue to receive the priority.

In view of the agricultural and educational changes and trends, it appears that many schools should move toward providing vocational agriculture which emphasizes adult education to an equal or greater degree than that provided to boys.

Programs for adult education are broader than just enrollment in organized classes and meetings. For example, the study showed that many teachers spent considerable time in conducting tours or demonstrations, performing individual on-farm instruction, assisting with Community Development activities and other community agricultural organizations. The study showed that extra care should be taken so as to keep the adult program an educational program rather than a service one.

Adult education for farmers should be organized so as to maximize the program's potential in meeting the needs and interests of the farmers. For example, farmer assistance should be sought in planning the adult programs, including determining types of education needed, methods of providing education, and location of classes or meetings.

Since it appears that school schedules and the unlimited high school enrollment in vocational agriculture greatly limit adult education, more effort should be given by school administrators and teachers to making adjustments which will minimize these limitations. For example, high school boy enrollment might be restricted and some classes combined so as to give large blocks of time during school hours to adult work.

It is apparent that time must be scheduled for adult education in order that the needs of the adult farmers may be met through an adult program in vocational agriculture.

More than one half of the farmers interviewed in the study indicated that they were not visited by either a teacher of agriculture or an extension worker during the previous year. Only a few farmers had participated in any agricultural education classes or meetings. Yet, almost all the farmers who were interviewed desired some type of organized instruction and teacher visits for an average of two to three visits yearly.

Curriculum (content of instruction)

Basic to the development of a course of study in vocational agriculture is a knowledge of agricultural education needs of the students and community. In obtaining this knowledge, teachers, with the assistance of their students and laymen such as an advisory group should obtain through a community study such things as types and methods of farming, major problems of the farmers, nature of the students' farming programs and possible ways of conducting the instruction, such as tours, classes, short courses, demonstrations and visits.

This knowledge about the students and community, together with a knowledge of conditions and forces outside the community which affect or cause problems in farming, form a basis upon which a course of study for each group of students can be developed and organized.

The study conducted indicated that the course of study in vocational agriculture should be greatly improved. For example, the study showed that the instruction in the classroom and work in the shop were not closely related to the farming programs of the students.

Perhaps, until sufficient consultant and/or in-service education can be provided to the teachers to assist them with organizing and developing their courses of study, some programs would be more effective if the teachers were provided certain subject matter which could be adapted to their communities and to problem-solving type teaching. This would help to correct the extremely wide variation in curriculum content now found among the schools which is caused by inadequate curriculum development rather than differences in the communities.

Farm Mechanics

The value of shopwork to the students, especially those with nonagricultural interests, indicates that offering general shop courses should be explored for some schools. A general shop course would not only enable the enrollment in vocational agriculture to be more selective, but such courses would come nearer to fitting the interests and needs of the students.

The study showed that the projects and instruction at school that pertained to shopwork or farm mechanics were not closely related to their farming programs. In view of the apparent value of farm mechanics to the students and the fact that farming now and in the future will require highly trained persons in farm mechanics as well as in management and planning, farm mechanics should continue to be stressed. However, more of the farm mechanics instruction and practical experiences than now exist should deal with problems of a farm mechanics nature. For example, farm power and machinery should be emphasized more.

In many schools, local school officials and people should plan and develop more adequate shop facilities in order that they may be effective laboratories in which practical work in farm mechanics can be accomplished. Many schools need larger shops and most schools need tools and equipment which are more appropriate to teaching farm mechanics such as farm power and machinery. Since the teachers' time and departmental facilities should be used for educational purposes, people should not be encouraged to use the shop facilities for service purposes when it affects the educational program.

Methods of Instruction

Methods of teaching vocational agriculture should vary, but they should be characteristic of vocational teaching--keeping the students as the center of learning rather than subject matter per se. This involves using a problem-solving approach--making effective use of practical experiences gained by the students through their farming programs, tours, field trips, demonstrations, and other practical experiences.

Apparently, the former students included in the study were especially concerned about methods of instruction since many of them in making suggested improvements indicated a need for more practical experiences in the course.

Supervised Farming Program

All teachers of agriculture should require the students to have strong supervised farming programs. The supervised farming concept is educationally sound and the farming programs are valuable to the students and essential to developing a vocational course of study.

The study showed that many of the students did not have complete farming programs. That is, they did not carry out practical experiences regarding a total farm business unit. In the supervised farming concept, the inclusion of supplementary farm jobs and improvement projects in addition to productive projects is an effort to cause students to get needed practical experiences

which cannot be gained by carrying out productive projects alone. These areas should be strengthened so that more effective instruction can be given in farm management and planning.

Initial planning coupled with timely and purposeful visits largely determine the effectiveness of the students' farming programs.

More time should be spent with students and parents at school and at their homes in selecting and planning the students' farming programs. For example, conduct students-parents-teacher meetings at school for the purpose of discussing supervised farming programs. In many instances, the time that teachers spend on less important activities would be used for planning the farming programs.

Records and records' analyses kept on supervised farming programs by students should be emphasized more to improve the quality of the programs and to increase the educational value.

On-farm Visitation

The study shows that parents thought the teachers should visit their sons on an average of 4.2 visits per year. This is compared to an average of 2.6 visits that were being made. Also, farmers and students indicated a need for more visits.

Since students desire and profit by more visits and since a teacher cannot carry out an effective program of on-farm instruction if he is at school during all school hours, more consideration should be given by school administrators in assigning normal school duties and in scheduling classes so that adequate and effective on-farm instruction may be given to boys and to adults.

The study indicates that the visits should be more purposeful and of an instructional type, relating to farm practices, and scheduled as far as practical to allow the greatest amount of efficiency.

Financing

Teachers are employed for educational purposes and not for fund-raising purposes.

The total program of vocational agriculture should be financed from school funds rather than from departmental fund-raising projects.

Teachers should submit annually to the school officials a budget statement on such things as equipment, teaching aids and references, and consumable supplies. The budget should be evaluated on the basis of the objectives of the total program.

Facilities and Equipment

In some instances, facilities and equipment are inadequate and/or inappropriate. Hence, they are limiting factors to carrying on an educational program in vocational agriculture.

Types of facilities will vary among departments, but there are several departments in the District that do not measure up to the minimal standards that have been established regarding facilities. For example, several of the shops are too small to serve adequately as laboratories for farm mechanics work experience.

The relative amounts of money spent in the shop compared to other areas and the types of equipment in the shops, imply that more care should be taken in spending the funds available. Funds should be spent where the greatest amount of benefit will be realized in reaching the purposes and objectives of the vocational agriculture program.

Community Services

Vocational agriculture is an educational program. The program's existence is based upon educational purposes. Teachers of agriculture, who are employed to carry out a program of vocational agriculture, should not spend their time on nor encourage the use of the facilities for service activities.

Teachers and/or students should engage in performing individual, school, or community services only when such services contribute to and are built around vocational educational objectives in agriculture.

Most of the farmers who were interviewed for the study indicated a stronger need and desire for education than for individual or group services.

In the communities where teachers are expected to spend a great deal of their time in performing individual services, the teachers' ability to carry out an educational program is greatly limited. In these communities, it appears that more use should be made of the local people in helping plan the program. Such local participation in planning should enable the teacher to effectively inform the people in the community of the purposes of vocational agriculture and how his time might be spent in conducting an educational program and without being overloaded with individual service work.

Relationships

In general, the study showed that teachers of agriculture had good relations with all whom they worked. Since good relationships are essential to planning and conducting effective programs, every effort should be made to continue to have good relations with all.

The principal is responsible for the total activities of the department and his supervision and aid in planning is essential.

Teachers of agriculture should not plan activities in conflict with other school activities.

For better relationships, supervision and administration, and improvement in accomplishing objectives of vocational agriculture, school administrators and the local people should be kept fully informed as to accomplishments and proposed accomplishments. To this end, mass media such as newspapers, radio, and TV for publicity purposes should be used more often.

The publicity about the activities of the vocational agricultural program should be distributed more among the various phases of the program and it should be in the name of the school.

Another effective method of informing the people is through advisory committees to the program. Not only is having a citizens group, representing the people of the community, an effective method of informing the people, but it is equally effective in identifying community needs, assisting with community studies and evaluating the vocational agriculture program.

Future Farmers of America and Contests

The FFA should be an integral part of the vocational agriculture program for boys. The FFA is chiefly an inspirational and motivational tool for the program, and with this in mind, it should be organized so that it may be used to the fullest. The FFA and its activities should not be considered or encouraged to function as an end in itself.

The activities of the FFA should contribute to the educational objectives of the high school program of vocational agriculture, but should not be brought into the classroom and taught to the exclusion of course content. For example, practicing parliamentary procedure is an important activity for the FFA to undertake, but such activities should not be taught and practiced in the classroom to the exclusion of more important agricultural education course content.

Preparation for and participation in FFA contests at all levels should be scheduled so as not to use school instructional time. Contests are often overemphasized and carried beyond the point of diminishing education returns or intended purposes.

The total FFA program activities should be evaluated, planned, and based upon their contribution to the total vocational agriculture program's objectives.

Professional Improvement

Strong in-service and other professional improvement programs should be developed.

The need for such programs can readily be seen by anyone who observes the changes that have and are taking place in agriculture and education. For example, in one half a century our Nation has changed from a rural, agricultural economy to an urban, industrial economy. This has been necessary for economic growth, and this trend toward urbanization and industrialization

will continue so long as the Nation continues to prosper and grow. These changes have caused many adjustments to be made in agriculture, many of which have not been made fast enough and thus, have caused many problems to develop, affecting the farmers most severely.

Efforts by vocational agriculture and other agricultural education agencies have apparently been inadequate for providing education to farmers regarding needed adjustments.

In education the need for more general and basic education for the students has been recognized and in many instances, especially in the larger schools, additional subjects and courses have been added. Thus, considering the educational and agricultural changes that have and are taking place, the relative need for vocational education in agriculture appears to be greater for adults than for high school students in many communities.

The uniqueness of the methods of arriving at courses of study for vocational agriculture also makes it necessary that teachers of agriculture receive guidance and assistance which may be provided through various professional improvement programs.

Further study is needed to determine the most needed areas of professional improvement and the most effective methods of providing the teacher education or assistance.

Evaluation

In general, the parents, farmers, and principals who were interviewed for the study indicated that vocational agriculture was of much value and the effectiveness of the programs was satisfactory. However, these groups were not familiar to a great degree with the vocational agricultural programs.

Teachers of agriculture should provide more information to those affected by the program with regard to what the programs should do and what they are doing.

Vocational agriculture was regarded as valuable by the students and former students, especially by those with interests in farming or occupations related to farming. Those with nonagricultural occupations valued vocational agriculture highly, but they apparently based this value upon the shopwork experiences which they received.

More attention should be given to the evaluation of emphasis given to the various phases of vocational agriculture with respect to their contribution to the objectives of the total program.

How Teachers Used Their Time

Apparently, the use of teacher time should be more organized and budgeted so that his time may be spent on the more important phases which should receive priority. Better organization of time would not only help assure that the more important phases of vocational education in agriculture would be accomplished, but it would aid teachers in effectively informing the school administrators and local people in what is and what is proposed to be accomplished.

Time devoted to service activities as opposed to educational activities should especially be de-emphasized since many of the teachers spent a large amount of their time during the school year and summer in performing such services.

The scope of school service activities performed by the teachers of agriculture and/or their students, in many instances, go beyond educational values. Thus, the objectives of vocational agriculture should be strongly considered when planning school or community service work as a means of providing practical experiences for the vocational agriculture students.

APPENDIX C

VOCATIONAL EDUCATION NEEDS FOR SOUTHERN PROGRESS*

As we begin to consider promising ideas for the promotion of Southern progress through education, I would like to center my attention on the need to prepare the people to meet the demands of industrialization. I want to do this, not because I do not think general or liberal education important, but because I do not have time to discuss all phases of education and vocational education needs are right now very important to the South. This is particularly true because lack of financial ability is perhaps our major roadblock and industrialization may help remove this obstacle. I shall also limit myself to the area of vocational education that lies in the province of the public school, including post-high school technical and adult education programs of less than college grade.

Vocational education is a part of the pattern of total education. In the mosaic of educational experiences that make up the structure of the school curriculum, it is a dependent part, built on a foundation of general education, parallel to and interrelated with academic education, upholding the never-ending and ever-rising structure of life-long learning.

Vocational education does, however, have a special role to play. This is to fill the manpower needs of the society that supports it. Because our society is a democratic society, vocational education shares with all education the responsibility for developing fully the human resources of the nation. Filling specific manpower needs is therefore restricted to those individuals whose interests can best be served in this particular way. We cannot simply train for jobs. Individual wishes and individual interests govern as much as manpower needs.

This, then, is our question. Within the pattern of changing manpower needs, while protecting freedom of choice, how can vocational education provide for the fullest development of human potential as this relates to the world of work?

There are two major areas we shall examine. The first is change in the economy as this gives implications for education. The second is change in patterns of vocational education to meet these changes in the economy.

*Adapted from a paper, "Education in Southern Progress," by I. E. Ready, director, Department of Curriculum Study and Research, N. C. State Board of Education, presented at the Center for Southern Education Studies Conference, George Peabody College for Teachers, Nashville, Tennessee, May 8, 1961.

The Southern Region of the United States has moved from the fringe into the full stream of industrialization. This is a significant change, and it carries far-reaching implications for education.

Workers in the extractive economy typical of undeveloped societies do not require extensive formal education. The discipline that controls and limits the field of their activity is external and natural, such as climate and weather, or the drive of physical hunger or discomfort. They think of these external forces as immutable and they do not think that education can help them overcome these forces. Nor are mental skills highly valued, but rather physical strength.

The Industrial Revolution brought great changes but, in the early stages, not much improvement in the lot of the masses of workers. From being serfs on the land, they moved to the position of serfs in the factory. The discipline that kept them in line became a social discipline, enforced by men rather than by nature. However, the foreman copied his method of control from the military. The workers did not need formal education because they were not expected to think for themselves. And the skills they needed were learned on the job.

Full-bodied industrialization, however, has created a different kind of economy. Machines take much of the physical labor off the backs of men. Automation requires thinking workmen, and not so many of them. The social discipline that motivates the worker becomes self-discipline. It has moved within the worker, himself, and can be developed only through the processes of liberal education. His skills, too, require more of the mental and many cannot be learned on the job. The worker without education is soon without a job!

Dr. Rupert B. Vance of the University of North Carolina says that an industrialized society is basically a society of clerical, professional and technical workers. It is for such a society that vocational education today must meet the manpower needs. It is in such a society that human resources must be developed to the fullest.

Change, then, is occurring in our world of work. The development of self-discipline will require more effective liberal education for all. The development of higher skills will require much more thorough and extensive vocational education. The avoidance of a large body of unemployables in the ranks of unskilled workers for whom there is a shrinking opportunity will require the fullest possible development of the liberal and vocational potential of each student, no matter how great his handicaps or how limited his ability.

To meet these changes in the economy, what changes shall education have to make? More specifically, what changes shall vocational education have to make it fit more perfectly its place in the mosaic of the curriculum of total education?

There are at least four directions of change that we shall have to face. First, we shall have to extend and strengthen the liberal education base on which vocational education is built. Second, we shall have to break down many of the fences we have built between the fields of vocational education. Third, we shall have to give more attention to a planned total program of vocational education opportunity that neglects neither manpower needs nor potential human resources. Fourth, we shall have to secure acceptance of the concept that formal education opportunity must be life-long in scope.

The internalization of social discipline in an industrialized society makes it essential that the liberal educational base for each worker be a sound base. If the forces that cause the worker to stick to his task until he accomplished his objective are not externally applied but are self-directive, they take on the nature of motivation rather than compulsion. Motivation grows out of the thinking, the ideals, the attitudes, the understandings of the individual, himself. We have come to believe that liberal education that sets men free does so because it develops internal forces that motivate. This liberal education will include the humanities, the sciences and the social sciences. Every worker must have the opportunity for formal education in all of these fields to the depth that he is capable of assimilating if he is going to be truly and liberally educated.

Because the time in the school day and year is limited, the natural result will be that the beginning of strictly vocational study will be deferred for most students until the late high school and possibly the post-high school years. In addition to this, concurrently with vocational study, liberal education subjects will make up the total curriculum for the vocational student as well as for the college preparatory student. These may well not be the same liberal education subjects for both groups, but they will give emphasis to liberal education. We may carry this a step further. As we plan post-high school vocational education, we must also plan for the broadening influence of concurrent liberal education. As we provide vocational instruction for the technician in an area vocational school, we must at the same time provide opportunities for him to study liberal education subjects. This will have definite influence as we develop curricula in the post-high school technician training institutions and as we develop opportunities for life-long adult education.

Not only must we broaden the liberal education base for the worker, but we must also break down many of the fences that we have built between different vocational education subjects, themselves. This can also be said of those subjects that we generally list in the area of practical arts, such as industrial arts. We are going to have to get away from our habit of setting up fences around different disciplines.

It seems to me that there is good evidence that the areas of instruction commonly placed in a course in industrial arts should not be separated out and all placed in a separate course. Many of the experiences

in this area might well be part of activity programs. Other experiences could be provided in core program in the junior high school years and directly related to some of the other subject fields. It seems to me that we make a mistake when we think that the exploratory value of industrial arts should be limited to the field of preparation for work in industry and that we have to have another course in first-year agriculture as an exploratory course for students who are preparing for that area.

In North Carolina, at least, there is convincing evidence to me that we need to develop in the ninth and probably in the tenth grades courses in general vocations that would provide instruction in the common vocational skills and understandings that undergird all of the world of work. In this way we would build on the base of general education an extension of this base which would be general vocational education. Not until the last two years of high school or the post-high school period would we then begin specialized vocational training in trades and industries, in agriculture, in distributive education, or in business. This, of course, is already the general practice in some of these areas.

Another thing we shall have to do is to give more attention to developing a planned total program of vocational education in our schools. If this is going to be accomplished, we should have federal aid to match state funds in this total program of vocational education, including these general vocational courses that might undergird the special vocational classes of the later period. The federal laws and appropriations should permit states to develop plans that would not have to earmark all funds for specialized areas of vocational education, but would permit the development of this more generalized base which still is vocational in nature.

Emphasis on guidance and counseling is the second necessary part of a planned program. It isn't enough that local schools shall develop local plans for vocational education that shall contain emphasis on all phases of vocational education, but guidance of individuals into the type of program that they need is also essential. Certainly, we shall fail utterly in our objective to develop to the fullest the human resources of the nation if we do not provide for the individual the very best guidance and counseling that can be provided in helping him to make his choices.

There is a third phase of this planned program we cannot afford to neglect. This is the careful planning of different types of vocational programs beyond the basic general areas for different groups of people. Migrant workers, older people, handicapped people are some of these. I would like to mention especially the students who are the drop-outs and the potential drop-outs in the regular school program.

Statistics show that from one third to one half of our students do not graduate from high school. Guidance and more effective curricula

might salvage half of these who have normal ability. About one half are below normal in ability.

Vocational and practical arts education have a unique responsibility for the potential school drop-outs because such education can be adapted to student interests and needs sufficiently to challenge them to remain in school. This is true for students who lack motivation or verbal ability or both. At least for those of limited ability, who make up about half of the drop-outs, applied general education should be provided along with basic vocational skills in core-type programs, probably beginning with the 7th grade, so that these students can graduate from a limited high school curriculum and so that they will not become unemployables and burdens on society. I see no reason why we cannot develop a type of core program that would include the necessary general education as well as the necessary vocational skills in order to develop to the fullest possible extent the potential of these students who are more limited in ability. Unless we do provide some sort of training of this nature, we may very well develop an increasingly large number of unemployables who may then become, like Millet's painting depicts, the modern "Man With the Hoe."

The last point I mentioned was that we must secure acceptance for life-long learning. Someone has said that the purpose of education, itself, is to equip individuals for life-long learning. Certainly, in the vocational field we must develop recognition on the part of all workers that they never finish learning. At the same time, the school is going to have to provide opportunities for formal educational training beyond the high school if workers are going to be able to come back and get refresher, upgrading, and retraining courses.

What does the future hold for vocational education in the South? One thing is certain, if it does not hold change, vocational education will not meet our manpower needs. Nor, as I see it, is this change simply a matter of retaining and extending present programs. A major overhaul is indicated. We need a new model of vocational education for a new day of industrialization.

What is the role of education in Southern progress? What can education do to unlock the doors to greatness for a region with a noble past and a future rich with promise? It can develop in all of the people a commitment to the basic philosophic ideals that underlie our way of life. It can make universal, liberal education liberate the minds of men and not merely polish the manners. It can provide the kind of vocational education that will prepare the Southern people to move into full industrialization. In these ways it can enable the South to accept President Kennedy's invitation to join in "the celebration of freedom."

APPENDIX D

PROCEDURES FOR PLANNING AN INSTRUCTIONAL PROGRAM IN VOCATIONAL AGRICULTURE

George P. Deyoe, Professor of Agricultural Education

University of Illinois

1956

An important goal of most teachers of vocational agriculture is to become increasingly competent in providing conditions favorable to effective learning by students. "What to teach" and "how to teach" are major problems which confront teachers in meeting this challenge. In planning an instructional program in vocational agriculture, we are primarily concerned with the "what"; but we must also give some consideration to how we expect to teach.

The following suggestions are intended to help a teacher in planning and organizing an instructional program for vocational agriculture, with major emphasis on the high school phases.

I. Developing an Acceptable Philosophy of Planning an Instructional Program

Each of us must come to grips with several issues and problems before a consistent and defensible approach can be made in planning an instructional program in vocational agriculture. Not all of us will agree exactly on what these issues and problems are and how they should be resolved. However, in formulating a "grand strategy" for the development of an instructional program, consideration of these issues and problems is important. We probably will find a surprisingly large amount of agreement on what this strategy should be.

Some of the important issues and problems are:

1. What groups are to be served in a "complete" instructional program of agricultural education?
2. What are appropriate objectives for instruction in vocational agriculture?
3. What is our concept of "functional instruction" in vocational agriculture?
4. How are farming programs (supervised farming programs) to be related to instruction and to the development of course materials?
5. What is the place of an effective guidance program in determining which persons may enroll in vocational agriculture?

6. What is the place of lay participation (advisory councils or citizens' committees) in developing policies for vocational agriculture and in considering implications for the development of an instructional program?
7. To what extent is the development of an instructional program in vocational agriculture a responsibility at the local level?
8. How may a course of study be planned and organized and how will it be used with each particular group of students?

II. Planning and Organizing a Course of Study

Instruction in vocational agriculture is likely to be most effective if course materials are planned in tentative form prior to the start of a school year. These materials planned for later use are variously called a "course of study," a "course calendar," or a "teaching guide."

Effective course planning involves the anticipation of needs and objectives of the students to be taught and the development of an instructional program, appropriate for these conditions. Since the needs and objectives of a particular group cannot be predicted fully and accurately, the plans thus made constitute a guide for use later in planning cooperatively with the groups which receive instruction.

Some of the steps involved in planning a course of study of the kind indicated are as follows:

1. Identifying needs and values to be considered.

Some useful types of information are farm census data, assessor's reports, data from farm accounts and records, soil survey maps, plans and recommendations of various agencies, specialized surveys, and observations by the teacher and other persons.

Values are of importance in determining the relative emphasis to be given to such phases as improved farm living, improved rural citizenship, improved family life, increased efficiency of production, and improved farm management. Consideration should be given to values held by prospective students and others in the community.

A local advisory council, or citizens' committee, for agricultural education may aid in analyzing and interpreting data of various kinds.

2. Formulating tentative objectives and goals.

Objectives and goals should be stated in terms of desired changes in persons who are to receive instruction. An advisory group may aid in identifying objectives.

3. Anticipating appropriate kinds of farming programs and other activities

Farming programs and other activities which should be encouraged in order to achieve the desired objectives should be given careful

consideration. These activities provide a basis for functional instruction and will to a large degree determine the kinds of instructional materials to include in a course of study. Data from the community and the home farms of students are helpful in determining appropriate kinds of farming programs. An advisory group may aid a teacher in considering what activities are appropriate.

4. Determining teaching units to be included.

In constructing a course of study, a teacher should consider the anticipated goals and objectives of students in carrying out farming programs and other activities. For example, if swine and corn are important enterprises in the farming programs, units or major divisions within these enterprises should be identified which will contribute to the abilities needed to secure efficient production in these enterprises.

Provisions should be made for other needed units, such as selecting farming programs, becoming effective members of FFA, and keeping and using records. Also, consideration should be given to units needed in carrying out improvement projects and other phases of farming programs and various activities of the FFA for which organized instruction is needed. These units constitute the "common elements" for instruction needed by most or all students in a class.

5. Arranging units by years and seasons.

Course materials should be arranged by years and seasons in accordance with the anticipated needs of students in carrying out their farming programs and performing other activities of importance. Time requirements should be estimated for each portion and the course of study adjusted in accordance with time available.

6. Developing source units for later use.

A source unit is a collection of instructional materials and possible procedures for teaching a major job. Each unit may include suggested objectives, anticipated problems of students, possible kinds of experiences, teaching aids and devices, suitable references, approved practices to be developed and applied to farming programs, devices for evaluation, and short-time teaching plans previously used. When the time comes to teach this unit (or a portion of it) to a given class of students, these materials are a source of suggestions for the teacher in developing short-time teaching plans.

III. Planning a Study Calendar with Students.

A course outline made prior to a school year is an important aid for use by a teacher in planning a course calendar with each particular class early in a school year. This cooperative planning is important because

the needs and the objectives of a particular group cannot be predicted fully and accurately.

The planning of a course of study, as previously discussed, is desirable because (1) more effective teaching is possible than if no such plans are developed, (2) teacher time is saved during a later period when time is at a premium, and (3) these plans made in advance of a school year provide a basis for effective teacher-student planning at a later time.

Short-time teaching plans are best developed currently as the instruction unfolds with a given class.

Some Suggestions for Arranging Course Materials

(Form I)

Allocations by Years

<u>Enterprises and major units</u> (Example)	Year taught and estimated No. of days			
	I	II	III	IV
Swine:				
Selecting foundation animals	5			
Feeding				
-basic feeding principles	6	4		
-at breeding time	2			
-during gestation	2			
-sows and litters	4	2		
-pigs for market	2	2		
Breeding and improving	2	4	2	2

(Form II)

Allocation by Months Agriculture I

<u>Enterprises and major units</u> (Example)	Month taught and estimated No. of days									
	S.	O.	N.	D.	J.	F.	M.	A.	M.	J.
Swine:										
Selecting foundation animals	5									
Feeding										
-basic feeding principles	6									
-at breeding time	2									
-during gestation	2									
-sows and litters					4					
-pigs for market							2			
Breeding and improving	2									

A Suggested Check List for Evaluating a Course of Study
in Vocational Agriculture

1. Has objectives which are primarily educational rather than agricultural in nature.
2. Provides for the selection and initiation of farming programs early in the school year and for replanning them in successive years.
3. Gives priority to activities and specific problems represented in the farming programs of students.
4. Is organized around units of a functional type.
5. Provides for teaching each unit during the year or years which give greatest assistance to students in carrying out their farming programs.
6. Has units arranged seasonally to correspond with the time of performing the corresponding activities in the farming programs.
7. Includes activities of the FFA Chapter as a means of reaching some of the objectives.
8. Includes instruction in farm mechanics as an integral part of the instructional program.
9. Provides for orientation and guidance into various phases of vocational agriculture and agricultural occupations.
10. Is implemented by source units for use in developing short-time teaching plans during the school year.

APPENDIX E

THE RELATION OF SOCIO-ECONOMIC TRENDS IN AGRICULTURE TO THE EDUCATIONAL OBJECTIVES OF VOCATIONAL AGRICULTURE

E. C. Pasour

July, 1957

Conclusions, Needed Changes, and Implications*

The forty-year period since the Smith-Hughes Act was passed has brought many changes. There have been changes in farming, in the secondary school system, and changes in the needs, interests, and vocational objectives of the pupils in these schools. It seems safe to state that no program of education visualized and formulated forty years ago can cope with the problems of this dynamic world without changing with the times.

To train present and prospective farmers for proficiency in farming continues to be the aim of vocational education in agriculture. It is not a primary, major, or important aim but apparently is the only aim. The contributory objectives, or abilities to be developed, are essentially the same today as when they were first formulated in 1929. At the present time, there seems to be a reluctance to change on the part of some leaders, both state and national. As recorded in Holy Writ, "Where there is no vision the people perish." Will a prolonged lack of foresight in vocational agriculture not have a similar effect?

The goal of agricultural policy requires the re-employment of large numbers of farmers and farm laborers in nonagricultural occupations and a reallocation of productive resources within agriculture. The real economic problem has always been the small inefficient farmer - the man who has too little land to yield a good living, no matter how high prices might be. "There are nearly a thousand counties in the United States where more than half of the farmers are mainly dependent on the income from small poorly paying farms." Such an example is that of the Mississippi Uplands. The Mississippi Agricultural Experiment Station estimates that an efficient reshaping of farm resources would mean larger farms and involve a 60 per cent reduction in number of farm workers. A technical revolution has occurred on American farms, and as a result, the hours of labor needed to supply our food needs are decreasing. Perhaps half of our farm youth will desire full or part-time off-farm employment during the present decade. Little attempt has been made to prepare farm youths for non-farm occupations.

*This is Chapter VI of a study that Mr. Pasour conducted, as a Special Problem in Agricultural Education, while a graduate student at N. C. State College, Raleigh, North Carolina.

It seems to this writer that our aim and objectives in vocational agriculture are not taking cognizance of this established fact; that there are limited chances of employment in farming.

It has often been stated that to solve the problem of low income in agriculture, several million people must migrate from the low producing farms. Can this statement be reconciled with the aim of vocational agriculture to train for proficiency in farming? It seems logical that there are situations in which a vocational agricultural teacher could benefit both the individual and society by providing assistance not in "making a beginning and advance in farming," but in helping the individual to secure non-farm employment. Many workers in agricultural education view the decrease in number of farmers, not as a blessing, but as a calamity. This type thinking gives rise to a narrow and restricted program of vocational agriculture. There are many "present and prospective farmers" whose bundle of resources is such that they can hardly hope to realize an "acceptable standard of living" on the farm. In many areas off-farm employment is available but we find occupational immobility for a number of reasons. Under such conditions, is the teacher of vocational agriculture providing education or "mis-education" when he blindly seeks to establish all these individuals in farming?

Yet, in vocational agriculture the "placement of young men in farming and the progressive establishment of both young men and adult farmers in farming occupations have become the final criteria for measurement of the effectiveness of vocational education in agriculture...." There seems to be a fundamental conflict here between the controlling purpose of vocational agriculture, as it is presently conceived, and the long-range goal of agriculture. This, in my opinion, is the fruit of maintaining our vocational agricultural objectives over a period of profound social and economic changes in agriculture.

The situation boils down to a re-definition of vocational agriculture with an emphasis on the present rather than on the future. There is no way of determining which boys entering high school will eventually farm. Therefore, if the teacher of vocational agriculture is to develop a truly vocational program it must be based on the present, rather than the future, needs of the students. In other words, the program can be vocational while the boy is enrolled in vocational agriculture regardless of what he may be doing ten years later.

Our program of vocational agriculture, as viewed in the light of the stated objectives and aim, seems to be more concerned with the industry of agriculture than with the people in agriculture. It seems only logical in a democracy that the vocational teacher of agriculture should strive to assist the individual in maximizing his potential, whether it be in farming or elsewhere. Are the needs and interests of the individual not more important than the aim of vocational agriculture; to establish him in farming? Why not work with the individual on his present needs and interests rather than worry about whether this individual will eventually farm?

Furthermore, there seems to be a need for personnel in the field of vocational agriculture to chart a common course dedicated to serving people as a whole, and then work together in the common cause. In 1854, Abe Lincoln aimed at the hot slavery issue with the opening gun of his campaign for United States Senator with, "a house divided against itself cannot stand." Certainly, our differences in vocational agriculture haven't reached such extremes. However, it seems inevitable that changes will be made in the foreseeable future.

What part can the individual teacher in vocational agriculture play in this apparent conflict between social and economic changes in agriculture and the aim of vocational agriculture? There are many areas in which he could easily provide instruction which would assist the individual regardless of whether he eventually farms or enters non-farm work. One such area is that of household mechanics. Such areas as wiring, plumbing, painting, etc., are areas in which the information provided will be useful regardless of what the individual may eventually do. Another such area is that of marketing. Very little has been done in vocational agriculture either in the area of marketing agricultural products or in the area of consumer economics. There seems to be here a huge and largely unexplored area in which there could be developed a supervised farming program which would more nearly serve the needs and interests of many farm boys enrolled in vocational agriculture.

Furthermore, the teacher of vocational agriculture can provide an invaluable service to the individual, if the individual is provided with a knowledge of the trends and changes in agriculture. This knowledge should be of trends and changes in his community, State and Nation. After the individual has been presented the complete picture, he will be better able to make a wise decision concerning his ultimate vocational choice. Such a program would necessitate that teachers of vocational agriculture be better trained in sociology, economics, and farm mechanics. An extension of the idea of research at the local level seems to be of paramount importance for the local teacher to develop a more effective program of vocational agriculture. There seem to be implications here for an improvement in the quality and quantity of supervision afforded the individual teacher. Such supervision should not be based on arbitrary regulations but on the development of an individualistic program of vocational agriculture based on local needs.

Any study of vocational agriculture brings out the need for a broader and more inclusive program for out-of-school groups. The local teacher has a responsibility not only to help those seeking help, but also to help others recognize their needs (who are presently not aware of such needs). It is obvious that this is a tremendous potential for vocational agriculture.

As stated previously, every program needs foresight and dynamic guidance. The program of instruction should not merely change to reflect changes in agriculture, but it should play an active part in the transition of agriculture. To accomplish this realistic objective, agriculture must be considered as a business rather than as "a way of life," in order for the teacher to deal effectively and objectively with the problems confronting agriculture. Agri-

culture is no longer self-sufficient but is increasingly becoming dependent upon other strata of the economy. Now, as never before, agriculture is being held accountable by all the people. Any program of agricultural education should be in the best interests of society as well as be well adapted to the long-range needs of agriculture. To develop such a program is a challenge to the profession of vocational agriculture today.

A GUIDE TO CURRICULUM STUDY: AGRICULTURE*

(Gerald B. James and G. Herman Porter)

Supplement

This supplement to the Guide reports further analysis of using the supervised farming programs of students as a basis for developing the curriculum in vocational agriculture.

As shown beginning on page 10 of the Guide, this approach to curriculum development has many advantages. There are, however, some limitations and conditions which influence the effectiveness of this approach that are not recognized in that portion of the Guide and which lead to the recent conception of a new approach to curriculum development.

The fact that agriculture is broad and includes many job opportunities other than farming is becoming an important consideration in agricultural education planning. It suggests that the curriculum in vocational agriculture should be planned so as to contribute to a person's vocational development, regardless of the agricultural career he enters.

Some of the limitations and conditions influencing the effectiveness of the farming program approach to curriculum development are

1. That agriculture, farming being only a segment, has and continues to change, creating increasing opportunities for employment in agricultural occupations other than farming.
2. That vocational agriculture has a responsibility to help prepare not only those who enter farming but also those who may enter any agricultural pursuit.
3. That most high school students do not and should not be encouraged to make a final selection of a specific occupation, especially in the early high school years.
4. That those students with current and real interest in agriculture should have an opportunity to explore their interests through vocational agriculture.
5. That some students in vocational agriculture cannot develop a suitable supervised farming program. These students and perhaps others would profit more from other types of supervised practice which might be provided through an agricultural business and a school laboratory.

*Department of Curriculum Study and Research, State Board of Education, Raleigh, North Carolina.

6. That using supervised farming programs of enrollees as the basis or core of the curriculum, even if all students could develop one, tends to cause instruction to be fragmented, unwieldy for group instruction, and may not give adequate emphasis to principles and concepts in agriculture that ought to be learned.

These conditions--that is, the limitation of developing and using supervised farming programs as the core of the curriculum together with the conditions in education and agriculture which affect the types of students who enroll as well as their post-high school plans--suggest that it is not practicable to use the farming programs of the students as the sole basis of the curriculum. This basis is too limited. Rather, the curriculum should be based upon a knowledge of all of agriculture in and outside of the local community. The curriculum for the four years that it is taught should be structured within the major learning areas identified on page 3 of this Supplement. Appropriate teaching units for each learning area would be selected by the teacher and assigned to the appropriate grade level. The selection of appropriate teaching units to some extent and to a great extent the selection of suitable subject matter and supervised practice experiences would depend upon a consideration of the students and their anticipated future. That is, a thorough consideration needs to be given to both the students' current and future vocational relationship to agriculture in and outside the immediate community.

At this point it should be indicated that the supervised practice program should not be deemphasized. Rather, the concept of supervised practice needs to be broadened to encourage practice in nonfarm agricultural businesses and practice at school in addition to practice on farms. Appropriate supervised practice should be used to the fullest extent in order to assure learning, through application, the things taught in the teaching units and to enable students to obtain exploratory experiences needed for their vocational development and guidance.

The New Approach

The new approach for planning the teaching program is similar to the "common units pattern" of curriculum development discussed on page 9 of the Guide.

Briefly to describe the approach, some statements have been adopted from mimeographed materials used in teacher workshops on planning the teaching program.*

*Workshop Committee (teacher trainers and supervisors), "My Teaching Program in Agriculture 1962-63: A Guide for Developing A New Approach," Department of Agricultural Education, N. C. State College, Raleigh, N. C. (Mimeographed materials)

...a new approach is recommended. This approach is a modified unit approach--a combination of several ideas from specialists in curriculum planning. The approach follows sound principles of teaching and learning as well as curriculum planning. Some of these are as follows:

1. Gives emphasis to understanding basic principles.
2. Planning for teaching and learning is in large units.
3. Provides for planning in advance, yet has flexibility to allow adaptability to students enrolled.
4. Learning experiences, rather than subject matter, are given priority in planning - individual as well as in class and group situations.
5. Each year of work (Ag. I, II, III, IV) is planned as a separate unit, yet becomes an integral part of a four-year program.
6. Objectives are more readily developed and used in program planning. (This applies to student objectives as well as teacher objectives.)
7. In a similar manner evaluation becomes easier to see and use by students as well as teachers.

How the New Approach Works

The Teaching Unit is important in this approach.

...it is a large area of study extending over a period of weeks. The major objective centers around developing understanding of certain basic principles. The unit is built around learning experiences for those enrolled.

To aid in organizing the Teaching Units into a teaching program, they are to be organized under seven Major Learning Areas.

- I. Orientation and Guidance
- II. Community Resources
- III. Agricultural Business
- IV. Animal Science
- V. Plant Science
- VI. Soil Science
- VII. Agricultural Engineering

The third major part of the approach is the development of Resource Units. These contain the teaching materials and resources needed for developing the Teaching Units.

There will, of course, need to be some planning for the daily class sessions as is the case for any teaching plan. However, in this approach daily plans will give emphasis to learning experiences needed by those enrolled rather than the blocks of subject matter "to be covered."

Undue repetition of content among the various years of vocational agriculture will be avoided. The selection and development of teaching units for all four years within the seven learning areas and subsequently assigning the units to the appropriate grade level affords a well structured curriculum.

Advantages of the New Approach

1. Provides for planning in advance, yet has flexibility to allow adaptability to the needs of students enrolled.
2. Reduces the "spotty" and "jumping about" procedure.
3. Allows for more student participation which, in turn, motivates students and increases student interest.
4. Promotes better coordination among teachers in multiple teacher departments.
5. There is a minimum of repetition in Agriculture II, III, and IV.
6. Teaching is more thorough and meaningful.
7. Reduces some of the daily planning which most teachers do not have time or take time to do.
8. Once prepared, resources are more readily available.
9. More closely geared to modern times--quality teaching.
10. Places more emphasis on technology and less on developing skills.
11. Will better prepare students for the future.
12. In general, the new approach lends itself to more effective teaching, learning, and evaluation.

